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EDITOR: JOHN M. FOWLER, M.A., M.S.

CONSULTANTS: Elizabeth Hiscox, M. D.

I. R. Bazliel, Ex-Maj., I.M.S.

G. T. Werner, M. D.

K. A. P. Yesudian, M.R.C.P., D.C.H.

R. M. Meher-Homji, B.D.S.

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PROVING ARISTOTLE WRONG

It was Aristotle who said that there is "not a soul without a mixture of madness."

We presume that a lot of us can get mad with Aristotle for that judgment. Surely which of us has ever had the privilege of spending a night in a mental institution? But, then, have we ever lost our cool?

You open a tap; there is no water. You squeeze a new tube; half of it gets flat before your brush has a little tooth paste on it. You get a litre of milk, but it is only milk in name. You buy a plug and before you fix the second wire, it breaks.

At every turn there is a twist—perhaps sufficient to make a person mad. But the name of the game is—keep cool.

How does one keep cool? the answer is not easy. It is as complex as life itself. But all of us can do certain things that contribute to making our lives more balanced, more harmonious, and hence, more healthful. Here are a few suggestions:

1. *Accept life as it is.* We cannot change the world. Let us accept our environment—things, events, ourselves, and other people—as we find it.

A person who accepts life as it is does not build castles in the air, and then brood over for failing to possess the castles. Dreams are for the asleep, not the awake. Accepting life as it is also means a readiness for adjustments: in failure, not to get blown over; in success, not to lose balance; in association, not to expect too much from others, or to set for others arbitrary standards; in work, not to think too highly of oneself or too meanly of others.

2. *Maintain a balance.* Keeping cool requires that we maintain balance—in all things. Abnormality reveals itself through its first-born: exaggeration. A balanced person does not swing the pendulum too far. His

drives, interests, words, actions and goals are well balanced. He cultivates the art of balancing between the dictates of mind and the demands of body, between his inner necessity and outer demands, between income and expense, between needs and wants, between responsibility and pleasure. Too much or too little of anything destroys the mental equilibrium.

3. *Have faith.* "Without faith it is impossible to please God," said St. Paul. Nor is it possible to live without this vital ingredient. Faith is an absolute essential to happiness. As Tolstoy said, it is "the force of life." Or as William Osler put it, "Without faith a man can do nothing; with it all things are possible." All human activity—religion, business, education, travel and everything one does—is based on faith.

To be mentally strong, one must exercise faith. It is an antidote for worry and fear—two of the chief ingredients in mental ill health

4. *Be a master, not a slave.* A balanced person overcomes the difficulties he faces. He is not overwhelmed by unforeseen circumstances, difficult problems, or hidden adversaries. He rides over them, with a smile as it were, and even if he loses the game he does not lose his balance.

Being a master of a situation means that a person grows up to be an adult—to plan, to decide, to act. Only a child pouts, cries, yells, rebels, and brags. But a balanced person guards against childish behaviour, and like St. Paul, comes to the point when he can say, "When I became a man, I gave up childish ways".

A lot of unhappiness, thus, is self-made. Given the will, we can be happy. We can be vibrant. And we can prove Aristotle wrong—even if by a mite and for a moment!

—J.M.F.

THE CANCER PLAGUE

by Dunbar W. Smith, M.D.

Cancer, second only to heart disease, is the most cruel of all killer diseases. It is the most devastating plague in the world today. An alarming fact is that the number of people with cancer is increasing. Nearly one-half million new cases are diagnosed each year. Cancer of the lung (primary bronchiogenic carcinoma) was virtually unknown fifty years ago, but it is the most rapidly increasing form of cancer today.

The statistics are grim, but there is hope. Physicians are more successful in treating cancer than obesity. If patients could be treated soon enough—if they would go to a doctor at the first indication of cancer—more than fifty per cent of those who die of cancer would live.

More than seventy-five large laboratories are spending millions of dollars in research toward a breakthrough in cancer treatment. Some of the world's leading scientific brains are focusing on this problem. Someone will be the Jonas Salk of cancer. Many are hoping to be. It is anticipated that some new discovery will snatch people from the brink of the grave.

Not too long ago a diagnosis of diabetes meant death. Banting and Best discovered insulin, and from that time on, by a simple injection, diabetics could live about as long as if they were nondiabetic. There

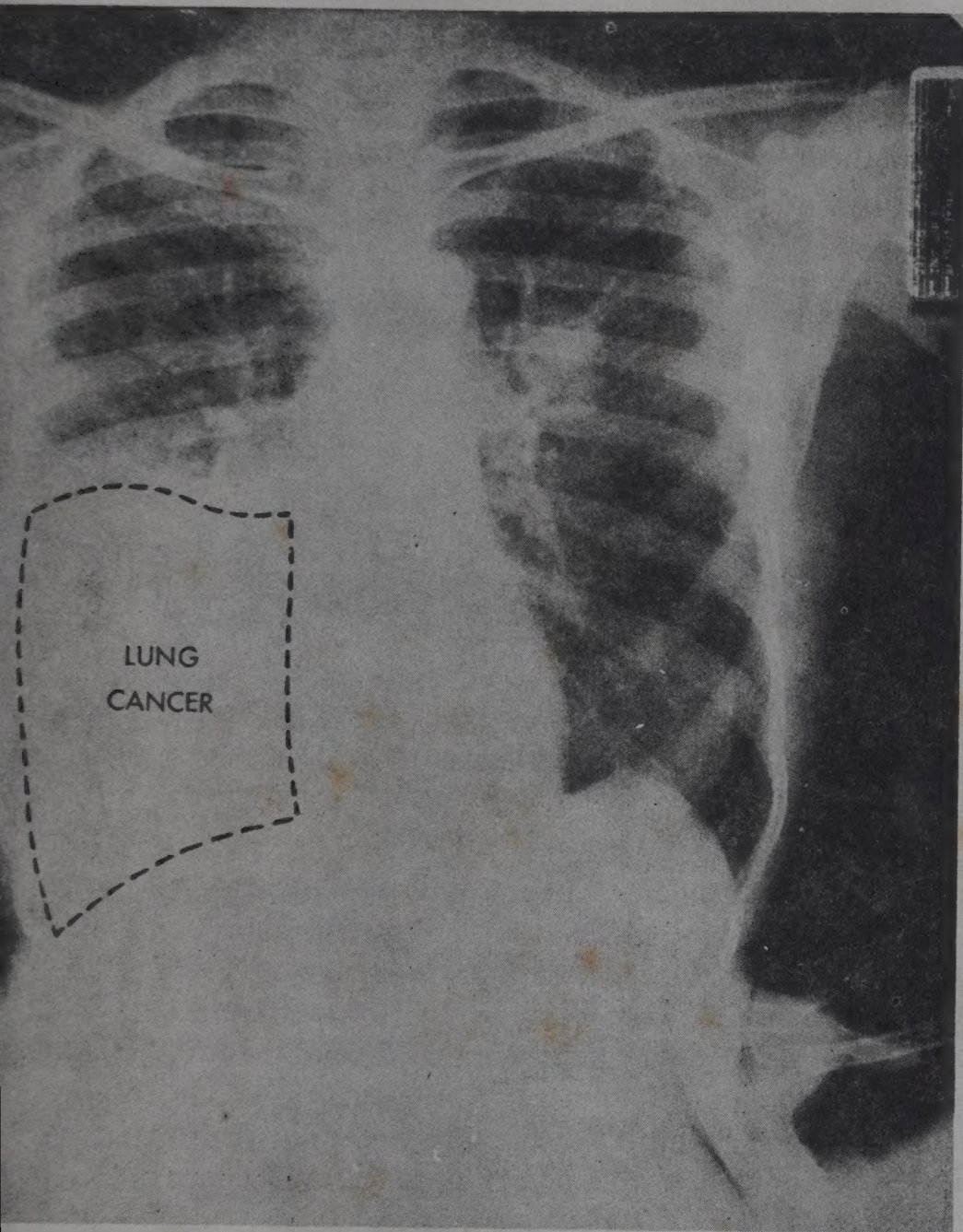
was a time when to tell a patient he had pernicious anæmia was to warn him of impending death. Minot and Murphy discovered the substance in the liver, later identified as vitamin B₁₂, that controls pernicious anæmia. We hope to hear one day soon in the headlines and on the radio and television about a marvelous new discovery that will banish cancer.

What is Cancer?

The word *cancer* is from the Latin word meaning "crab". The disease was so named because as it spreads, a central body develops projections that look like the "legs" of a crab.

Cancer is an erratic, uncontrolled growth of body cells. The control mechanism in the cells fails, and so they run wild and do not stop multiplying. Normally, body cells develop and multiply according to a pattern. The whole body—hair, eyes, muscles, bones, nerves, blood, and every organ—all came from one cell. That primary cell divided, the two resulting cells divided, and in time cells differentiated to form bones, brain, nerve tissue, blood vessels, and so on. Cells multiplied by the million, and after constructing perfect organs and an adult body they automatically stopped multiplying.

What caused the cells to stop multiplying? This



The outlined area of this X-ray shows extensive lung cancer. This deadly disease is most common among smokers.

There are many theories about what causes cells to run wild and multiply uncontrolled. A current opinion is that the primary cause is a virus.

Someone has likened the action of viruses to looters after a hurricane. The people have fled, and the police have not arrived. The looters slip in and pick up what they can. So it is with cancer viruses. When the body tissues are broken down and the protection is gone the viruses sneak in and take control. There is reason to believe that viruses cannot do this unless secondary factors have prepared the way.

Cancer Research

"The hottest thing in cancer is research on viruses as possible causes," said Dr. John R. Heller, head of cancer research at the Sloan-Kettering Foundation in the United States. Of the work of another investigator *Newsweek* reported:

"It is known that viruses can lurk in the human body for years, even a lifetime; some cause trouble, some do not. It is possible, said Dr. Stanley, that all of us are walking around with 'sleeping cancer viruses.' In some cases, Dr. Stanley theorized, the cancer viruses may become active through circumstances such as aging, dietary indiscretions, hormonal imbalance, chemicals, radiation, or a combination of these stresses, and malignancies may follow."

Dr. Ludwik Gross, M.D., said in the *Journal of the American Medical Association*:

"During the past decade the concept of viral etiology of cancer and allied diseases has gained considerable momentum. Experimental data began to accumulate pointing more and more to the possibility that many, if not all, malignant tumours may be caused by viruses. Thus a large number of malignant tumours of different morphology and in different species of animals could be transmitted from one host to another by filtered extracts. . . . It is not entirely impossible that most, if not all, malignant tumours not only in animals but also in humans, are caused by filterable viruses."

If one or several viruses are identified as being the primary cause, we would know better how to

is as much a mystery as what caused them to start. Controls are placed in every cell and organ. In cancer, the cells multiply without control. In this respect they are like juvenile delinquents, for they grow and multiply rapidly, do not obey the rules, and do not assume the duties of adult cells. They reproduce early and die young.

Cancer is a tumour (mass), but not all tumours are cancerous. The nonmalignant tumours ordinarily do not destroy life, unless they are in the brain where they may kill by pressure or erode even through bone. Malignant tumours grow in organs and tissues, and they may extend into a blood vessel, where through the blood or lymph the cancer cells may spread to other parts of the body and establish colonies (metastasis). Cancer of the thyroid gland may colonize in the kidneys, bones, lungs, or brain. A person may die of a tumour in the brain that came from a tiny growth in the thyroid gland.

There are several varieties of malignant tumours. The main ones are carcinoma and sarcoma. Cancer of the blood is called leukæmia. Blood is a fluid tissue made up largely of cells.

prevent, effectively treat, and possibly cure cancer.

What is a virus? It is a very small organism that cannot be seen with an ordinary microscope. It will pass through a filter that screens out bacteria. It is practically inert and does not breathe, eat, excrete or multiply except within a living cell. It is on the borderline between the living and the nonliving.

More than 4,000 different viruses are known. You have about twenty varieties living in you. The common cold is a virus disease for which there is no known cure. Influenza, measles, chickenpox, smallpox, hepatitis, and poliomyelitis are all virus diseases. Poliomyelitis was greatly feared a short time ago but no longer.

Virus in a Cell

A virus multiplies only in a living cell. It enters through the cell wall like a pirate, takes control, and borrows the reproductive mechanism of the host cell in order to multiply. Soon there are millions of viruses. As they leave, the cell usually, but not always, is destroyed. If the cell lives after such an experience, its productive and control mechanisms may have been fundamentally altered. The virus usually disappears, and as the cell reproduces, it forms strange immature daughters—cancer cells—that multiply erratically and rapidly.

Disappearance of the virus is one of the reasons why medical scientists were delayed so long in discovering the virus relationship to cancer. The virus commits the perfect crime—slips in, destroys or alters the cell, and is gone. But today Sherlock Holmes of the research laboratory is hot on its trail.

If cancer is caused primarily by a virus, there is a possibility of control. What has been done with the virus disease smallpox, theoretically can be done with the virus disease cancer. Actually, vaccines have been produced from cancer viruses in animals, which protect other animals.

It has been known for a long time that viruses cause cancer in certain animals and birds. In 1911 Dr. Peyton Rous, of New York, discovered that the cause of sarcoma in chickens is a virus. This same virus has caused cancer in other species of animals. Vaccines are being used to immunize chickens against this malignancy.

"So in some animals, the circle of evidence is virtually complete: Viruses are linked with leukæmia and certain tumours, and immunity is offered through vaccination," said *Time* magazine.

Prisoners were given injections of tissue from the

brain of a patient who died of leukæmia. The prisoners did not develop leukæmia, but they did develop a high degree of immunity against it. Blood from these men was made into a serum, which was used to immunize rats. Later rats were injected with the leukæmia virus, which would kill unprotected rats, but they did not get leukæmia. If this procedure can be carried out for rats, possibly it can be done for people.

Cancer from Where?

Where do cancer viruses come from? Apparently they are not air-borne and are not transmitted by direct contact. Many doctors handle hundreds of cancers. I spent a year slicing cancers and looking at them under a microscope. A doctor may examine many thousands of cancers in a lifetime and not develop cancer. Here are a few interesting statements:

Dr. Richard E. Shope, referring to the epidemiology of cancers and virus infection, said:

"We have no way of knowing whether or not tumour viruses may be dependent on sojourn in one host for their transmission to another. We must be prepared not to be surprised if some aspects of the cancer problem may not be found, in the next 50 years, to fall into zoonoses field [*zoonoses* means "animal disease"]."—*Pediatric Herald*, December/January 1960-1961.

"Cancer in animals, including dogs, may constitute a more or less overlooked hazard of transmission to man, a government cancer specialist says."—*New York Post*.

"Discovery of a bovine [cow] virus closely resembling human adenovirus suggests that cattle may be an important source of human virus."—*Scope*.

The incidence of cancer among animals is high. My opinion is that much cancer is caused by eating flesh foods containing cancer virus.

White-faced cattle, if they live long enough, get cancer of the eye. But only gross cancer is found and condemned by government meat inspectors. An animal, just as a person, can have a cancer that cannot be seen nor detected by ordinary means. When a person has a cancer in any part of his body, it is known that the virus is all through his body. Cancer cells can be found floating in the blood stream in about forty per cent of cancer patients.

The virus is likened to a planted seed, which will not grow unless the soil is prepared. A virus causing cancer will not grow unless the tissues are altered by secondary causes that "prepare the soil."

Cancer: what you should do

Some secondary causes of cancer have been known for a long time. Sir Percival Pott, an English surgeon in eighteenth century England, noted that only chimney sweepers developed a certain type of skin cancer. Pott deduced that soot ground into the skin was the cause. A law was enacted that forbade chimney sweepers to enter chimneys to clean them, and this type of cancer largely disappeared.

Irritants in some coal-tar products may be secondary causes. A substance once used to colour margarine in the United States is forbidden, because when rubbed on the skin of a rat it caused cancer. Now yellow carotene—a preliminary form of vitamin A and a perfectly harmless ingredient of natural food—is used to colour margarine.

The sale of cranberries was prohibited because the insecticides used on the cranberry plants, when experimentally rubbed on the skins of animals, produced cancer. Other experimental irritants are carcinogenic (cancer causing), such as methylcholanthrene. It is produced in the frying pan by overheating fats.

The U.S. Food and Drug Administration ordered all foods and drugs containing cyclamates (an artificial sweetener) off the market on September 1, 1970, because experiments showed that it can produce cancer in rats, although there is no evidence that it has contributed to cancer in humans. (Reported in the *Journal of the American Association for the Advancement of Science*, September 4, 1970.)

Smoked meat may be a secondary cause of cancer. The people of Iceland had a high incidence of cancer of the stomach. A study indicated a direct relationship between cancer and the amount of smoked fish consumed. Once a great deal of smoked meat was eaten in America, but this custom has decreased—and so has cancer of the stomach. I would suggest that you stop eating smoked fish and smoked beef.

Tobacco tar associated with cancer of the lung is a good illustration of a carcinogenic chemical ir-

ritant. There are at least eight different substances in tobacco smoke that when applied to the ear of a rabbit will cause cancer. Why people knowing these things go on smoking is beyond me.

"One out of every eight cigarette smokers will develop cancer of the lung, and almost all would if they did not die earlier of the heart disease, emphysema, or some other malady caused or aggravated by tobacco poisons," says famed chest surgeon Dr. Alton Ochsner, of New Orleans, U.S.A.

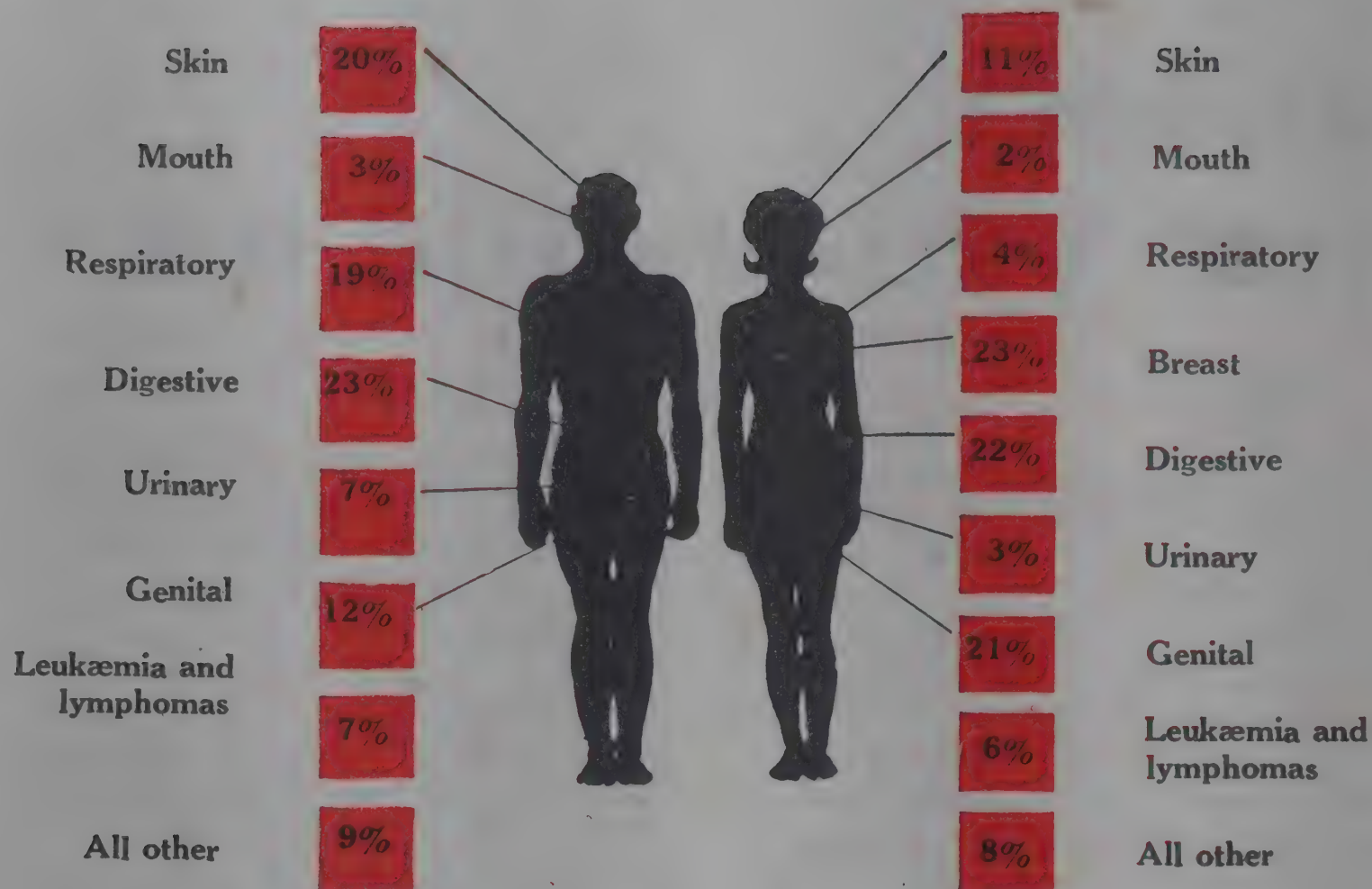
Among nonsmokers there is only one case of primary cancer of the lung for every 300 cases of cancer among smokers. It is possible to get lung cancer from atmospheric pollution, but smoking is by far the greatest cause of lung cancer. Cancer of the lip may be caused by smoking a pipe, and cancer of the throat may be caused by smoking cigars or cigarettes. In India many people who have cancer inside the cheek or in the tongue chew pan, a product made up of a leaf mixed with lime, cloves, areca nut slices, and tobacco. The cud of pan is placed inside the cheek and held there. Devotees have red sputum that looks like blood. Their mouths and teeth become stained red and black.

The *New England Journal of Medicine* reported a case of cancer that developed inside the patient's ear. The patient had been putting snuff in his ear for thirty years!

Mechanical Irritants

Mechanical irritants such as jagged teeth may be a secondary cause of cancer. Cancer may develop in skin that is not clean. Heat may be carcinogenic. I have a little wicker basket with a clay pot inside that I purchased in Kashmir. In winter the Kashmiris fill these pots with burning coke and hold them inside their garments close to their stomach. Some develop cancer of the abdominal skin from the heat of these little furnaces.

In some parts of Indochina the people drink tea rapidly and so hot you would not put your finger in



Cancer Incidence By Site and Sex

it. The nerves inside the throat are not so sensitive to heat as those of the hands are. There is a high incidence of cancer of the throat and esophagus among them.

Over-Exposure

Sunshine is health promoting in controlled amounts, but in too large amounts it may cause cancer of the skin. It is not wise to acquire a quick tan. No person ought to permit the skin to sunburn. This burning may do irreparable damage to the skin. It may cause it to age prematurely and possibly eventually result in skin cancer. The incidence of skin cancer is high among white people who live outdoors in the African and Australian bush and among sailors, fishermen, and farmers. In one part of Russia a report stated that the people who wore skullcaps developed cancer of the face, whereas those who wore hats with brims did not develop it. Expose yourself to sunshine, but do not overdo it.

Radioactive substances may cause cancer. A famous cause developed in New Jersey watch factory, where luminous radium numerals were painted on the watch dials. The women who painted them would

touch the tongue with the brush. They thus absorbed radioactive material. When they began dying of cancer, legislation prohibited this practice.

The incidence of cancer and leukæmia is high among radiologists (doctors who use radioactive substances and X ray). Doctors who pioneered the use of X ray before the danger was fully known were over-exposed. One whom I knew had twenty or thirty operations on his hands for cancer, and eventually died from it. Radiologists now wear a device that monitors exposure time. No one will get cancer from X-ray exposure once or twice a year or even oftener, but repeated exposure day after day for many months may result in cancer.

Atomic Fallout

There is danger from atomic fallout. The United States Public Health Department is watching this possibility very carefully. Radioactive substance may be in the food we eat, the milk we drink, and in the water we drink. As more atomic bombs are exploded, there will be more fallout. If the level becomes too high, a disaster may result.

Cancer may come from overstimulation of the

endocrine glands with the production of too much hormone. Overstimulation of sex glands may have a lot to do with the high incidence of genital cancer.

Cancer Prevention

Until there is a vaccine or some potent chemotherapeutic agent, what can be done about cancer? First of all, support the great cancer-fighting agencies. The United States Government at the National Institutes of Health is spending millions of dollars, and the Sloan-Kettering Institution in New York City is doing a marvellous work. The American Cancer Society is spending millions and is doing a monumental work.

Second, have an annual physical examination.

Third, know the danger signs of cancer and watch for them. When they appear, go immediately to your family doctor. Here are the signs.

1. Prolonged or unusual bleeding of any kind.
2. Persistent cough that lasts longer than two weeks. A tobacco smoker ought to have an X-ray examination of the lungs every six months.
3. A lump that develops and grows. It is probably benign, but have a physician examine it to be sure.
4. A change in a wart or mole. If it becomes irritated, bleeds, grows larger, starts spreading, or if little satellite moles develop around it, go to your doctor immediately.
5. Change in bowel habits. Constipation alternating with diarrhoea is a significant sign.
6. Any kind of sore that does not heal.

Treatments for Cancer

Modern treatment is effective. [Surgery is an effective and rational treatment and often cancer can be removed effectively by surgery.] One in three is saved, but if the disease is diagnosed early it could be one in two or better.

Radium or radioactive isotopes and X ray may cause cancer. They can also cure. Cancer cells are susceptible to radiation. Sufficient radiation is given to kill the abnormal cells, although sometimes normal tissue is injured. It is better, however, to be alive and free from cancer with some minor tissue damage than not to be alive at all.

Sometimes a combination of surgery and radiation is advised. If you have cancer, do not hesitate if a qualified physician orders either or both treatments.

Many chemicals and plant products are being tested for their effect on cancer. Some seem to be effective. Sometimes chronic leukæmia can be con-

trolled for years in this way. Other medications show promise. Someday a "magic bullet" may be found that will be as effective against cancer as the antibiotics are against many common germ diseases.

Our Part

Other ways to help prevent cancer are to stop smoking or using tobacco of any kind; live a healthful physiologic life; get exercise and sunshine (not enough to burn the skin); breathe plenty of fresh air; lead a moderate sex life; keep your body clean; and keep your emotions, appetite, and passions under control. Do not go to excess in anything. Do not expose yourself needlessly to radiation.

I would suggest that you eliminate fried and smoked foods. I would like to recommend a vegetarian programme, because I think it has definite advantages in cancer prevention. If you think you must eat flesh food, be sure to cook it well. I also suggest that you cook eggs well. Use only sterilized milk or better still, use milk made from soybeans. Do not use raw eggs, because the incidence of cancer in chickens is very high. Eat a nourishing diet, but cut down on sugar.

Watch for the first sign of cancer, and if it appears, go to your doctor at once. If his diagnosis is cancer, have it treated immediately. Today you have a good chance of cure. ***



Low Back Strain

by J. DEWITT FOX, M.D.

In my practice of neurosurgery I treat two of the most common ills of modern man—backache and headache. Although both can be caused by the stress and strain of modern life, backache is often the aftermath of some unaccustomed sudden twist, lift, or strain of the back, whether from lifting a heavy bag of rice or a box from a high shelf that slips coming down or working in the garden too long on a Sunday afternoon. If the back is not accustomed to this sudden strain or exercise, a strain or even a sprain may result. Monday morning may find you crippled up with a backache, with so much muscle spasm you cannot get out of bed.

Too many Sunday athletes end up with backache because they forget to exercise throughout the week. A housewife may find that her back goes into a kink because she does not bend her knees when she picks up around the house, but bends from the back, putting an unusual strain where it should not be.

Prevention of low-back strain is really a way of life. You should

remember that the body in normal function puts no strain on muscles, ligaments, and joints—is pain-free and agile. Whether you sit, stand, walk, work, exercise, or sleep, you should take your back into account, especially if low-back pain is a problem.

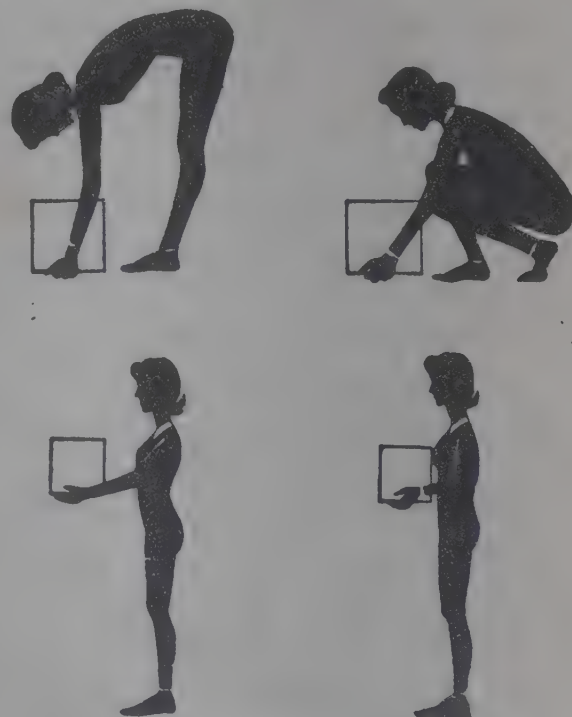
Benefits other than back comfort will be yours. When your body position is correct internal organs have enough room to function normally and blood to circulate freely.

It takes practice to gain good posture. By learning it, you will gradually develop proper carriage and the strong muscles needed to protect and support your hard-working back. Each time you practise good-posture habits you are that much closer to the time when you will carry good posture without thinking about it. Here are some suggestions that can help you develop good-posture habits:

1. Lifting. When lifting, to prevent back strain always keep the object as close to your body as possible. This precaution reduces the leverage factor that

comes into play when you lift a box at arm's length. A 100-pound sack held close to you puts a 100-pound pressure on your last lumbar disk, but a 100-pound sack held at arm's length may put as much as 1,500 pounds of pressure in leverage on your disk, and it may rupture as a result.

2. Picking Up Weights. Bend your knees when picking up anything from the floor. Never lean over and pick up something with



your knees straight and your back bent. Your legs, not your back, are meant to be the jackknives. It cannot bend except at the last disk and at the hips, and at this level, a strain it cannot tolerate can easily be put on it. A strain, sprain, or ruptured disk may result.

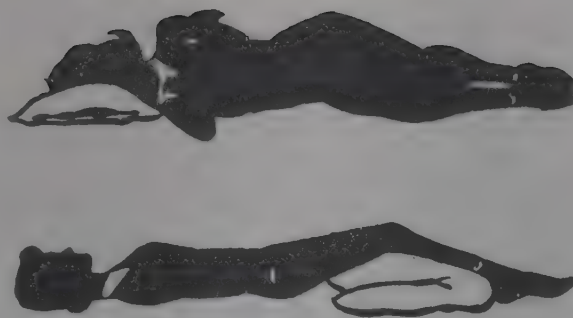
3. Long Standing. You can accomplish prolonged standing more comfortably if you put one foot at a time up on a footstool. This posture takes extra strain off your back by rolling your pelvis under and flattening your back. The housewife who stands ironing for long periods should put one foot at a time upon a footstool about a foot high.

4. Swayback. Sit with knees crossed or with knees above hip



level to flatten swayback. A back's best friend is a straight, hard chair, preferably with a little tilt that puts the front an inch or two higher than the back. Lacking the slant, sit on the edge of the chair with legs crossed to put the right pelvic inclination to your back. Tighten abdominal muscles to keep chest up and head erect. A footstool may help to bring knees higher than hips.

5. Driving Position. Drive with a seat belt in place to encourage you to sit erect and slightly forward instead of slumping into the soft seat. Keep your car seat close to the pedals to require you to sit correctly and flatten your low back. Avoid strain while driving by relaxing at every stop the car



must make for traffic lights and signs.

6. Sleeping Posture. Sleeping on the face encourages swayback and low-back strain, especially if on a soft mattress. For proper bed posture a firm mattress or a bed board under the mattress is essential. A faulty sleeping position may increase swayback and result in backache and tingling pains in arms and legs in the morning.

The preferred position for sleep is on the side with knees bent. This posture effectively flattens the back.

Sleeping on the back is restful and correct when the knees are properly supported, but lying flat on the back without support to the knees may make swayback worse.

7. Rest for the Back. Rest your back. The most comfortable position to do so is with all pressure and weight taken off your back and with your knees bent. Lie on the floor with two pillows under your knees and one under the small of your back and relax.

Another great way to relax



is to lie on the floor with head on a small pillow, your knees bent and legs resting on a straight chair, and a pillow under your calves for comfort. By resting five to twenty minutes in this position your back will enjoy much relief.

8. Acute Low-back Strain. For the morning that you get up and find you are crippled with back spasm, as if someone had thrown a hatchet into your back, this programme may help:

Lie flat on the floor with your feet up on the bed and a pillow beneath your neck. As soon as you can navigate, slowly head for the bathroom and have a hot bath. The hot water relaxes your muscles better than anything else can.

You may need pain medication. If you require something stronger than aspirin, consult your physician immediately.

Muscle relaxants have been found effective by physicians, and you may require them before you can achieve comfort.

Your doctor may advise pelvic traction, which usually is given in a hospital.

If bed board, hot bath, and medication cannot get you comfortable at home, the next best place for you is a hospital where you can get intensive physical therapy.

9. Herniated Lumbar Disk. Recurrent episodes of back pain from low-back strain or associated with sciatica usually point to a herniated lumbar disk, and you may need extensive study by a doctor.

In a small percentage of cases more is needed than conservative measures, and surgery is necessary. The surgeon will advise X-ray of the lumbar spine.

If a herniated lumbar disk is your problem, corrective surgery will offer dramatic relief of pain.

HOW TO KEEP THE TEEN-AGER HEALTHY?

by HAROLD SHRYOCK, M.D

For the most part teen-agers are a healthy lot. Their bodies are only a few years old, and they have not yet had time to suffer from diseases of deterioration. They have abundant energy, and their tissues have the ability to adapt readily to changing circumstances and to heal promptly when damaged. They are not old enough yet to be much affected by heart disease, cancer, and stroke, which are in that order the most prevalent cases of death in the population at large. In terms of the usual illness, teen-agers are so healthy that accidents provide the major cause of death in their numbers.

But this does not mean that the effort to promote the health of young people in their teens is unimportant. Quite the contrary. The teen-age years are pace-setting years. For example, the teen-ager who is undernourished will carry a handicap with him for the remainder of life even

though he may later correct his nutritional deficiencies.

Every individual has a certain quota of vital energy—the health-promoting entity that enables the body to resist illness and to provide healing. Some people have more than others, and they are the ones who have good resistance to disease. Whatever happens to the teen-ager to reduce his quota of vital energy will make him less able to combat illnesses that he is yet to encounter. Even a person who starts life with an abundant reserve of vital energy can squander it until his ability to remain healthy is no better than that of a person who had a meagre supply at the start.

Each illness and every

major stress of life subtract a little from a person's precious quota of vital energy. True, when a person recovers from an illness, the normal processes of his body tend to reach equilibrium again. But even though his recovery appears complete, his ability to maintain health is not as good as it was before the illness.

There are certain health problems that particularly concern the teen-ager, and these are of special interest to anyone responsible for the health of young people.

Acne. Acne is a skin disorder characterized by the appearance of multiple pimples, which appear most frequently on the face but may also involve the upper back, chest,



and arms. Each pimple represents an obstructed and inflamed oil gland. Pimples are most numerous where the oil glands are most abundant. Acne is not caused by germs, but it frequently is complicated by the presence of germs.

The exact cause of acne is not easy to determine. In some young people it seems to result from dietary indiscretions. There is also an endocrine factor to be considered. Acne occurs at the time of life when the endocrine organs are particularly active. There may be an emotional factor also in the sudden appearance of acne. The teenager who is having a difficult time rising above the anxieties

of adolescence or in becoming reconciled to his new role of young adulthood is more apt to develop acne than is a person the same age who has developed confidence and equanimity.

The teenager with acne deserves gentle reassurance. The ailment usually disappears during the early twenties whether the skin receives specific treatment or not. In the meantime, the condition can be much improved by good techniques of washing the skin, maintaining good nutrition, and getting adequate rest.

Orthopaedic Problems. Teenagers have many problems related to their bones and joints. The reason is partly because of their tremendous urge for physical activity, and partly because they are more prone to accidents at this time of life. Many athletic injuries involving teenagers result from powerful muscles pulling too forcefully on growing bones.

Some teenagers have problems of posture, such as stooping or hunching the shoulders. The teenager who develops a fear of growing too tall may subconsciously allow himself to slouch rather than assume full height. Parents of teenagers do well to place their emphasis on the general appearance of the young person rather than particular faults in his appearance or deviations from a fixed ideal. They should commend their teenagers for the progress they are making rather than nag them into conformity on certain points. There are some cases of defective posture, however, which are in need of early professional care to prevent such problems, for example, a permanent curvature of the spinal column.

Sexual Disorders. It is during the teens that the organs of reproduction come into their own. In earlier articles in this magazine I have mentioned the child's need for intelligent and sympathetic guidance as

he learns about the proper functions of the sex organs.

One problem that causes a great deal of concern among some adolescent boys is the development of breast tissue on one or both sides in a manner that alarms the boy for fear that he is following the feminine pattern of development. Actually, a boy's breast contains the same fundamental tissue elements as does a girl's. Occasionally a boy's breasts respond temporarily to the sex hormones in a way that causes the latent breast tissue to enlarge. A boy in this situation needs sympathetic reassurance that his breasts will return to male proportions within a few months, for this is exactly what happens in the great majority of cases.

The health problems of teen-age boys are not usually as troublesome as those of girls. Menstruation, when it is painful, delayed, excessive, or scanty, is a problem that gives a teen-age girl some reasons for concern and lays the foundation for persisting anxiety if the condition is not properly interpreted. In such cases the family doctor or a physician who specializes in gynecology should be consulted. When physiological cause is not present, more often than not the deviation can be explained by unsolved emotional tension that lies at the foundation of the girl's symptoms. The reproductive

organs are very responsive to the emotions.

Psychological Interference with Health. Adults may fail to realize what tremendous psychological pressures some teen-agers reckon with as they make the adjustments to early adulthood and how often these pressures interfere with the teen-ager's health.

A younger child is usually quite content with his identity as a boy or as a girl. But a boy or girl blossoming into manhood or womanhood may ask, "Do I really want to be the kind of person I am?" It sometimes is a major problem to accept sexual identity and be happy about it.

Then there is the matter of a teen-ager having to modify his self-image as his body takes on the characteristics it has inherited. Some children grow into tall men and women; others into stout ones. Some appear vigorous and muscular; others not so. Because being dissatisfied does not change the fact of his bodily characteristics, a teen-ager must learn to accept them.

Another particular challenge in the teen-age years is learning to be self-reliant without being disrespectful to parents. A teen-ager has to make decisions and then be satisfied with the consequences. This is a hard lesson to learn. It requires that he learn to carry responsibility.

Anxiety Problems. The factors that most frequently produce teen-age anxiety may be outlined under four headings.

1. *Concern over sex.* This concern is not only related to sexual identity but also to the recurring question, Am I normal and properly suited for marriage?

2. *Conflict with authority.* The teen-ager who has learned to get along well with his parents at home has an advantage in making appropriate adjustments to the authority of teachers, employers, and officers of the law. On the other hand, the teen-ager who has not learned at home how to follow life's rules cannot readily reconcile his need for making decisions and carrying responsibilities with the conflicting demands of those who have control over him.

3. *Quandary over unrealistic goals.* When parents set goals for their child that are beyond his individual capacity or require aptitudes beyond those he has inherited, the child feels thwarted. He is torn between his desire to please his parents and his need to be realistic. Usually this sort of conflict reaches its crisis during the teen-age years.

4. *Disappointment over failure in school.* This problem is related to the teen-ager's quandary over unrealistic goals. Usually the failure

is not because he lacks intelligence but because he lacks interest and motivation. The drop-out feels humiliated and resentful and needs devious ways of trying to maintain his self-esteem.

The varied consequences of his anxiety may extend through a rather wide range, including the possibility that he will develop ill-health as a result. Invalidism provides at a subconscious level an excuse by which the teen-ager or a person of any other age, for that matter, can say to himself, "My failure to make proper adjustment is not my fault." This attitude is the foundation for the various kinds of functional (emotionally induced) illnesses that are prevalent today.

The teen-age years provide an important transition in the life of a human being, representing as they do the introduction to adulthood. It is a time of life when the individual has advantages of physical stamina and mental alertness but lacks emotional stability and the experience on which to base his new-found responsibilities. Because of these deficiencies he is vulnerable to those illnesses that result either from lack of information or from emotional turmoil. Functional illness following in the wake of unsolved emotional problems often sets the stage for invalidism in later life. ***

Diabetes and Diet

by O. S. PARRETT, M.D.

Among the many letters coming to my desk from the readers I find the following one of special interest. It is from a woman whose husband has diabetes. Because her problem is one often faced by diabetics I quote from her letter.

"My husband, aged sixty, had never been sick until the last year, when we learned that he has diabetes. The diet he was given is heavy in the things we have always considered causes of high cholesterol in the blood. It calls for eggs or meat at every meal. He is a carpenter, and he finds that the prescribed diet does not give him enough strength to carry on his duties."

This patient faces several problems. I wish that every diabetic patient might attend a diabetic school for guidance in understanding the problems he faces and learning how best to meet them.

Once while calling on a patient, I noticed a beautiful, unusually lively white dog around the house. The man told me that the dog was a vegetarian, that he never fed him meat. He bought canned vegetable soup for the dog. He said, "You should see that dog when we go for a walk. He does not follow at my heels but dashes ahead a hundred yards and bounces

back again and again. He never gets tired."

I am sure that many diabetics and other people who are accustomed to eating a high protein diet, which usually means much meat, might increase their bounce by following the meatless programme.

Years ago a young man of eighteen years founded a physiological or biochemical laboratory at Yale University. Such a thing had never been done before. To bring myself up to date on this experience I wrote Yale University an inquiring letter recently. I learned that this man had passed away in 1947. He still is called the grand old man of biochemistry.

What did he do? Taking eleven soldiers from the barracks of the U.S. Army he put them on an experimental programme. He cut off two thirds of their meat ration. Those men were certain that with what they considered to be very little meat in their diet they would soon be in need of a cane. They were cared throughout the experiment with meticulous care, with their strength checked before and after the six-month experiment. Everybody was amazed to find that their strength had doubled in that time.

I say that everybody was

amazed, but there was one exception. Prof. Russell Chittenden, who was the eighteen-year-old man, probably was less surprised than the rest, for he had conducted a similar experiment on dogs before trying it out on men.

Endurance Factors

What about the endurance factor? No mention is made of it in the reports of this project, but in other testing programmes the endurance factor also shows surprises when applied to the two kinds of diet with meat and without meat.

It may be of interest here to know that the fastest animal in the world is the cheetah. At top speed he has been clocked at seventy miles an hour. Although the cheetah's speed is almost unbelievable, his endurance factor—like that of all meat-eating animals—is limited. If he is out to get an antelope or other vegetable-eating animals he must overtake him within five hundred yards or the game is lost.

When I was visiting Loma Linda University, Loma Linda, California, not long ago Dr. U. D. Register called my attention to an article in the magazine *Nutrition Today*. The writer, Per-Olof Astrand, M.D., who is an athlete in his own right, is director of a physiological institution in Stockholm, Sweden. Referring to carefully conducted experiments, he shows that athletes under strenuous exercise utilize little, if any more, protein than do control athletes at rest. He promises athletic coaches that he can increase the stamina of their trainees as much as 300 per cent by rearranging their diet. He sums up in one short paragraph these facts:

"There seems no doubt that it is proper to exclude protein from

consideration as a fuel for working muscle cells. Therefore, our attention should be focused on carbohydrates and free fatty acids."

Now we can understand why the woman's diabetic husband feels tired on his meat-and-egg diet. What is the way out of this diabetic's dilemma? Certainly we dare not turn the patient loose on a high carbohydrate (starch and sugar) diet.

Why Meat?

Before presenting the solution to the problem let us take a look at meat to discover why it is often suggested for diabetics.

Three elements go to make up starches, sugars, and fats. They are carbon, oxygen, and hydrogen. Add two more elements—nitrogen and sulphur—and you have protein. To make this combination available for producing heat or energy, the protein must get rid of the nitrogen and sulphur. When that is done, it is carbohydrate or fat. This process takes time, allowing the carbohydrate to ease slowly into the blood stream and thus prevent peaking of blood sugar. What becomes of the sulphur and nitrogen? They pass out through the kidneys as waste (uric acid, urea, xanthine, and the like). It is called by chemists the NPN, or nonprotein nitrogen. What does it do to the kidneys? There is the rub. It does the kidneys no good, tending to wear them out quickly.

There is a better solution with no strain on the kidneys.

Problem of Diet

In a diabetic the blood sugar level must be controlled by diet or diet plus insulin and/or mouth medicine, of which Orinase and Tolinase are good examples. Regardless of the method the

diabetic patient uses to keep the urinary or blood sugar within bounds, every diabetic patient needs to be told that his problem is primarily one of diet, regardless of what he may add to the programme in the form of insulin or drugs.

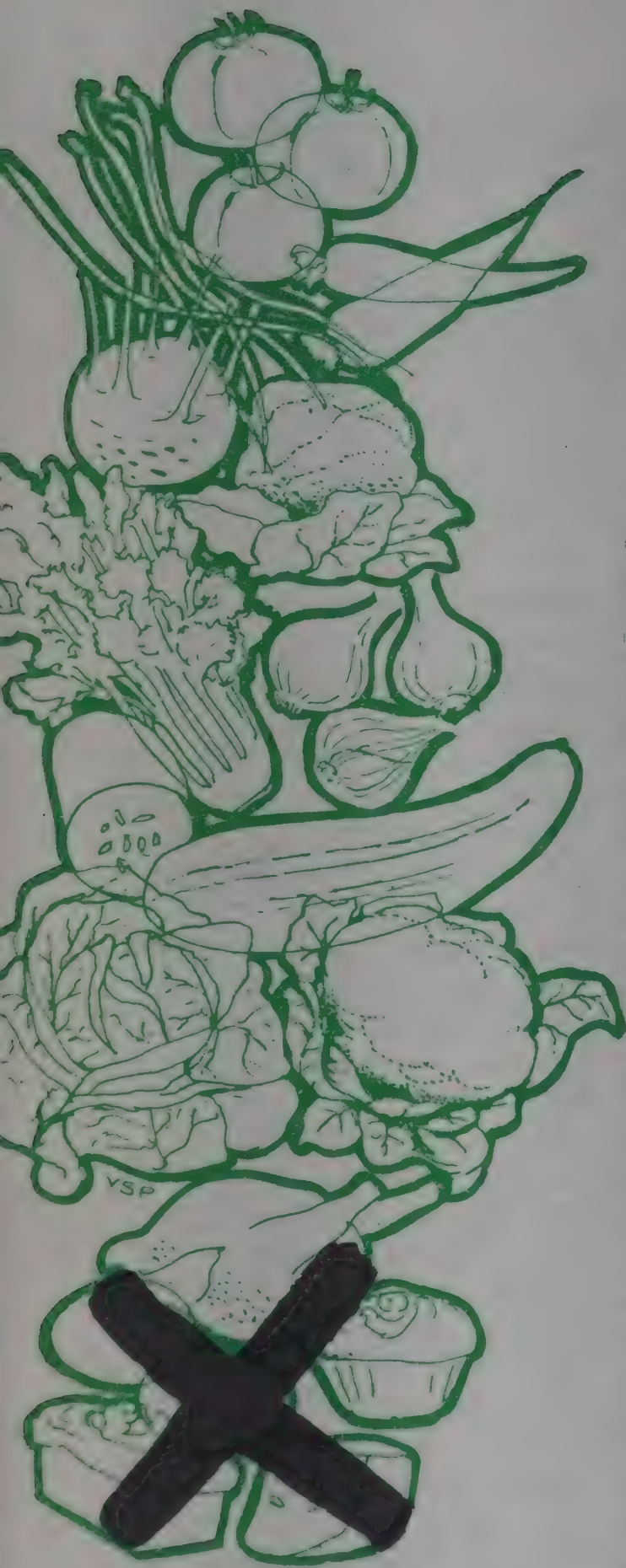
This advice will help him to avoid the mistake of a friend of mine who felt free to indulge his appetite without restraint. He had the mistaken idea that because he was taking insulin and drugs he need not restrict his diet. His indulgence caught up with him finally.

Diabetics must seek to learn the best programme for them and follow it closely, lest a day of reckoning come.

In mild cases coming on in the latter years of life, watching and planning a good diet may be all that is required. However, in children and young people control by insulin usually is necessary.

People who know of diabetes in close relatives such as parents or blood-related aunts and uncles do well to begin dieting early in life—avoiding sweets, sweet desserts, and excessive carbohydrates and eating only what is needed for good nutrition, remembering to always leave the table feeling they could freely have eaten more. As many as fifty per cent of diabetics are found to have blood relatives with the same disease.

In the First World War when the British and American navies blockaded the shores of the countries on Germany, preventing food from entering, and forcing the Germans to subsist on short rations, it was observed that diabetes cases reached a low level. It may be true that half of what we eat supports us and the other half supports the doctor.



I have never been enthusiastic over having a pair of scales next to a patient's dinner plate, thus turning what should be a pleasant occasion into a research experiment. I would prefer to have in mind a large list of permitted and

preferred foods and see to it that the cook includes some of them in her menu, with the patient eating heavily or largely of those of lowest calorie count, and least of all of those running medium high in sweets and starch.

Instead of a meat and egg programme to prevent peaking of blood sugar and forcing sugar out into the urine, which frequently occurs when the blood sugar level reaches 175 milligrammes per cent, the same results can be secured by a better method: Use bulky foods of low calorie count, which require more time to digest and be assimilated, thus keeping the blood sugar curve at closer to normal levels. This plan assures avoiding sharp peaks in the blood level, causing more gradual rises and falls, requiring fewer controls yet ensuring needed energy levels in the blood stream, resulting in less fatigue.

When albumen or casts appear in the urine you are headed for trouble. I have cleared many such appearances of albumen by simply having the patient cut out of his diet for a few days all meat and meat soup. If it should come to a choice between diabetes or Bright's disease of the kidneys, I think I would prefer diabetes.

Among the best foods to serve as diet controls are string beans (with only thirty-six calories per cup), spinach, summer squash, asparagus, beet greens, broccoli, cabbage, carrots, cauliflower, celery, cucumbers, onions, and radishes. I consider tomatoes of great value for diabetics, because they can be prepared in many ways. A cup of stewed tomatoes rates only forty-two calories. A whole head of lettuce is only fifty calories.

You soon will learn the main groups of acceptable foods, and with a little Test-Tape you can test the urine within a minute at

any time and note whether sugar is reappearing and also the percentage of sugar. This test serves as a guide in planning your diet.

Insulin and Drugs

When should you take insulin and/or drugs such as Orinase or Tolinase? Older people often dislike the needle, and so are likely to use the mouth medicines, which work by stimulating the pancreas to increased activity. Small children and youth usually are advised to use insulin rather than drugs.

Recently there appeared in a popular magazine an article in which a Dr. Edwards who heads the U.S. Food and Drug Administration was interviewed about drugs that are said to take the place of insulin. He said that tests made on patients using them as compared with controls who took no drugs showed that deaths from heart disease involving blood clotting were two and one-half times more frequent among the drug users. He points out a fact I have observed over a half century of medical practice, that there are few drugs without side effects. Sir William Osler is said to have remarked, "He who takes a drug must recover twice—once from the disease and once from the medicine."

I agree with Ellen G. White when she says that the more the physician understands the laws of health that govern the body the fewer drugs he finds necessary.

I asked my grandson who is taking his medical course whether he was not required to take a course in dietetics. He said it was not required in the regular course but was elective. It seems strange not to require study of foods. I believe that diet plays a major

role in most diseases, either directly or indirectly.

I am sure that with heart disease now known to exist as a diet problem there are many other diseases soon to be considered in the same light. Increasing diet skills for physicians will lead to less resorting to drugs, I believe.

With a busy practice it takes much time to tell a patient how and why he needs to change his diet and other habits such as drinking tea, coffee, and liquor and using tobacco. The doctor might easily and profitably for the patient spend an hour or two in telling him about the simple laws of health both to cure and to prevent disease.

We hardly dare blame the doctors generally for giving the patient what he is asking for.

Summarizing choice of methods in handling diabetic cases I would say that for young children or early teen-agers the use of insulin is more certain to ensure the child a good future and long life. Using insulin or a substitute treatment that supplies the body with a natural chemical the body is failing to produce has its advantages at any age. However, it must be admitted (as Dr. Edwards pointed out) that any older person who has trusted in the mouth drugs to control the blood and urinary sugar levels should be aware that research indicates the added danger that blood-clotting diseases may thereby be increased.

A further fact I wish to emphasize is that an excessively high protein diet, usually of meat and eggs, is not a rational procedure when it is known that protein foods cannot be used by the body for heat and energy and excess of them will result in abnormal fatigue. A carefully planned diet is an important factor in a diabetic patient's self-care. ***

Keep Your Feet Healthy

by J. STEWART

Foot complaints of every kind are on the increase. This is due to many causes, but not least is the fact that so many women insist on wearing tight-fitting shoes.

To a great extent, the state of the feet depends on the fitness of the body. An absence of vitamins and mineral-salts affects the soundness of the body. This reduces the vitality in the tissues of the feet, making them susceptible to quite a number of foot ailments. This lack of vitality causes, among other troubles, chilblains and corns.

Shoes and Feet Care

To combat foot ailments much can be done. It is advisable to be sure of one's general condition by adopting a balanced diet. Exercise and plenty of fresh air are important, and so is the regular oiling of the feet. Oiling invigorates and stimulates. Washing the feet in soapy water and washing soda also helps to soften the skin.

Tight-fitting shoes seem to be the chief cause of corns. The sufferer should make sure that footwear is of the right size, as corns can be prevented by the wearing of shoes that allow the toes sufficient space. The powdering of the feet, too, helps to reduce friction and so

eliminate corns. Another effective measure is that of sponging the feet regularly with lavender water or vinegar.

Chilblains which occur in autumn and winter, make their unwelcome presence felt initially by an itching, which affects the toes, fingers and sides of the feet. As soon as these symptoms appear, the intake of all sugary foods and of white sugar should be reduced. Brown sugar and honey should be used instead.

The common practice of warming the feet by holding them close to the fire does more harm than good, causing no little damage to the tissues of the feet. The heat tends to dry them and so increase the itching.

As itching begins internally, the cure must begin internally.

The diet should include plenty of fresh fruits, milk, eggs, salads, beans, dates, and figs. Also keep the body as warm as possible.

An excellent remedy for chilblains is cod liver oil. This should be taken at the rate of one teaspoonful twice a day. If cod liver oil is found to be disagreeable, then calcium lactate at the rate of ten grains three times a day should be taken instead.



Simple Treatments

Another treatment for chilblains is sliced onions. The onion should be moderately applied to guard against breaking the skin. If the skin is broken, however, treat the chilblains with eucalyptus oil. If chilblains itch a great deal, the application of camphor is helpful.

Athlete's foot, excessive perspiration, and tender feet should be treated with footbaths, which are very soothing. But this treatment will not, of itself, cure acute pain and foot troubles. It is essential to keep the skin as healthy as possible, in which condition it is better able to withstand disease.

Athlete's foot is a fungous infection. It is often contracted by walking barefoot in swimming baths and bathrooms on wet, infected floors. The infection reveals itself between the toes in most cases, but it can also appear on the hands and in the groin.

To combat the condition, a dusting-powder of zinc, starch, and boric powder, should be sprinkled between the toes and also in the socks and shoes. Socks should be changed regularly, and the feet should be bathed in a solution of hyperchlorate in the proportion of

one ounce of chloride of lime to a bucket of water. This helps greatly to relieve the pain which, at times, can be very severe.

An excellent measure which reduces the risk of developing foot troubles is to dispense with the wearing of socks or stockings when in the house. Nervous muscle tension and a body out of condition are often the underlying causes of excessive foot perspiration. Many suffer from this throughout the year while many more experience it only during the summer. The condition is far less likely to establish itself if the sufferer avoids wearing nylon stockings or socks. This material prevents adequate ventilation of the feet.

Right Footwear

The sole of the foot is thought to have more sweat glands than any other comparable area of the body. This explains why so many people experience the discomfort of excessive moisture between the toes. But the condition is provoked and irritated by incorrect footwear. The toes are held too close together and are not allowed to rest in their natural position.

When the toes are cramped there is risk of bunions resulting. You might feel you are wearing the right size of shoes when, in fact, you are not.

There are ways of finding out whether your footwear is too small. For example, do you suffer from throbbing, aching feet after hours of standing or walking. Do you rock your feet when sitting? Do you find yourself taking your shoes to the cobbler to be reshaped? All these things indicate that you are wearing ill-fitting shoes. The wearing of rubber boots or shoes with thick heavy soles, can also cause real trouble.

Aching and painful feet are not only a misery in themselves, they make the sufferer feel generally weary. The victims of tired feet also suffer a sense of frustration, not knowing which foot to stand on to gain the greatest ease. Lack of walking exercise and a general state of unfitness tend to provoke these conditions.

An excellent treatment for the feet is made up of a teaspoonful of table salt, a piece of alum and a tablespoonful of boric powder. Dissolve these in a litre of warm water and, when cool, add a wineglassful of Eau de Cologne. Use the preparation as often as possible in the proportion of one cup of the liquid to a basin of water.

Healthy feet are essential to a sense of general well-being. To achieve this condition it is essential to wear the right type of shoes. Exercise is also important, and so are plenty of foot baths. The general health should, of course, be taken care of by means of rest, fresh air, and a sensible diet. If these measures are adopted, foot troubles are likely to become no more than unpleasant memories.

WHY EXERCISE?

by MERVYN G. HARDINGE, M.D., Dr.P.H.

THE story is told of a psychiatrist living in southern California who liked to go for a walk in the evening after his day's work with nervous patients. But time and again the city police, on the watch for suspicious characters out after dark, stopped him for questioning. Giving an account of himself to an officer was not exactly the doctor's idea of a bedtime story. But how to avoid it?

Being experienced in helping others solve their problems helped him solve his own. He hit on the idea of getting a dog to take on his walk. Since everyone knows that a dog needs exercise, even the police saw no reason to question his motives. He could now take his constitutional without interference.

But why does a dog—or you—need exercise? In the face of an epidemic of heart disease in our country, it is a question worth exploring. In the United States two out of every five people who will die this year will die of heart disease, the leading single cause of death. The risk runs high and the need to lessen this tragic loss is urgent. If we can help you under-

Here are the reasons exercise is vital to good health.

stand a little more clearly how your heart works and how exercise can help keep it healthy, your life may be prolonged.

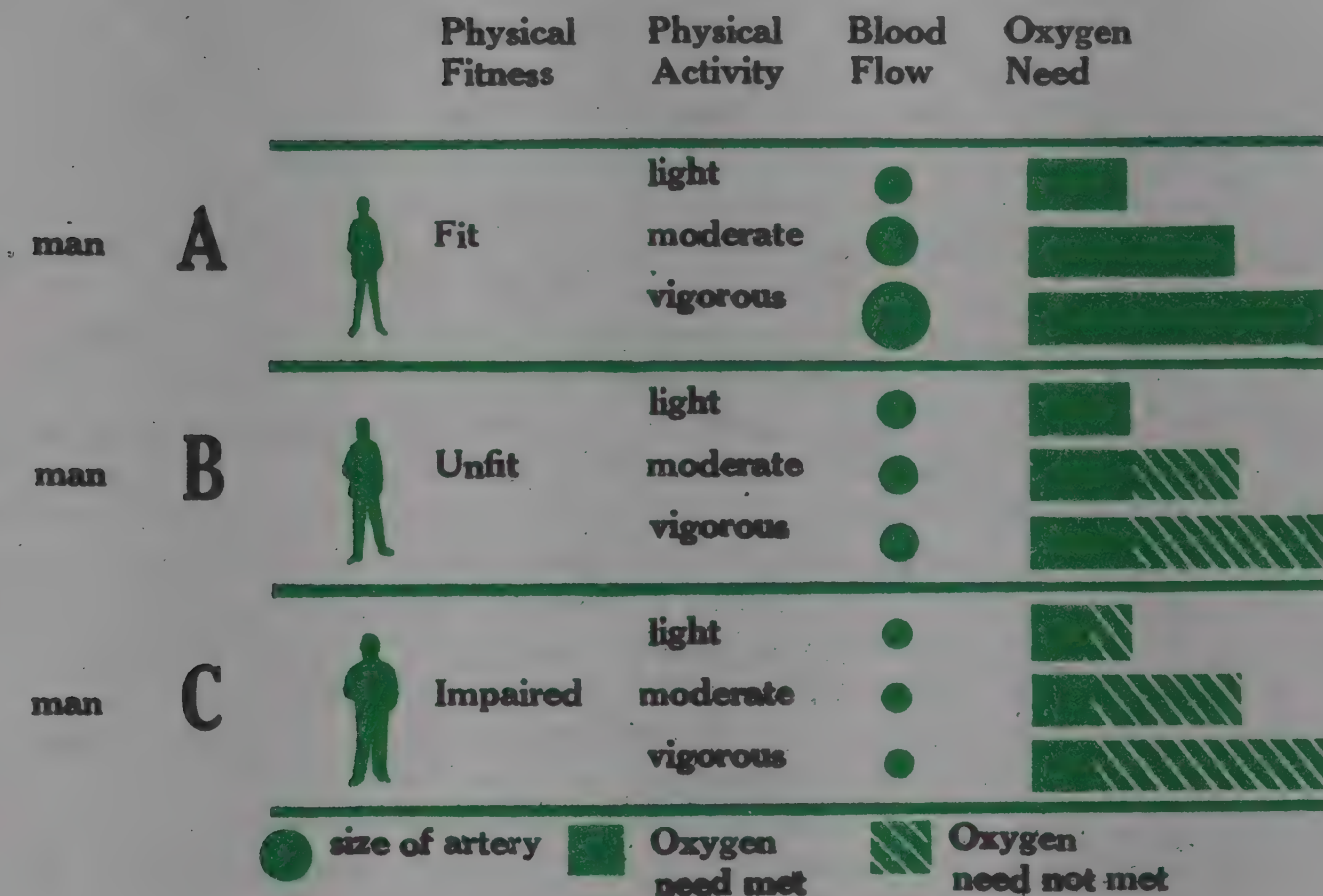
Miracle Muscle

Your heart is a hollow, four-chambered ball the size of your fist, arranged in circular and spiral layers of muscle. When these contract, your blood is literally squeezed out of its chambers into your arteries, which branch like the roots of a tree to carry blood to every living cell. To get an idea of how your heart works, just clench your fist and open it again and again seventy-two times a minute. Do this 100,000 times a day or forty million times a year and rest only a fraction of a second after contraction. That's how your heart works year in and year out. It is the sturdiest, toughest muscle in your body, pumping 2,000 gallons of blood every day.

Then why, you ask, do so many hearts quit beating prematurely? The main reason is that we just don't treat them right. Did you know that the heart is the first organ of your body to lose efficiency if you let it rest too much? And that it has to beat faster to pump blood than if you kept it in good exercise condition?

If you're a sedentary person, your heart beats seventy to eighty times a minute at rest and pumps some three ounces of blood into your aorta (large artery exiting from your heart) with each beat. This meets your needs at rest but it does not provide much safety margin. Such a sluggish circulation requires neither your heart nor your blood vessels to work vigorously. In time, your heart loses its muscular strength and the arteries their stretchability. Neither is fit for an emergency. Then if activity is suddenly increased, as when you run for a bus or push a lawn mower, there is an immediate need for your heart to pump more blood to the working muscles. Then if you are not used to exercise, the sudden demand may

RESPONSE OF ARTERIES TO EXERCISE



prove too great for your heart. Reports of men dropping dead while shovelling snow from their walks are not rare.

Properly regulated activity strengthens your heart muscle and slows its beat. If it is accustomed to exercise, its larger size and stronger contractions can pump as much blood in sixty beats as the fast, shallow stroke of the unconditioned heart does with eighty beats. A saving of twenty beats a minute means a saving of 1,200 beats an hour or 29,000 a day. In a year's time this amounts to 10.5 million heart-beats saved by keeping physically fit. If your heart is in good exercise condition, it can double or triple its output when necessary without undue strain, and slow its speed quickly to normal after hard work.

Circulation

But to be effective your heart must be connected with a good

arterial system to circulate the blood it pumps. A healthy artery can stretch like an elastic rubber tube. Then, during the heart's momentary rest period, it can contract like rubber released from tension and squeeze the blood down its length and out into its branches. Your aorta, the big artery into which your heart pumps most of its blood, is able, if it is normal, to expand to carry at least double the amount of blood ordinarily circulated.

Your health and efficiency depend on a good circulation to carry oxygen and nutrients to every living cell and to remove waste materials from these same cells. When you increase your activity you create a need for more oxygen for your working muscles, especially for your heart muscles, which work harder than any other. Your heart itself is not nourished by the volume of blood that pours in and is pumped

out of its chambers. It has its own blood supply—the coronary arteries. These branch out from the aorta, spreading over the heart's surface like a network, penetrating its tissues to reach every muscle fibre. It is the job of your coronary arteries to take care of the needs of your heart, but in order to do this they must be elastic enough to stretch and carry sufficient blood for every level of activity you may undertake.

Consider now, for example, the coronary artery efficiency of three hypothetical men—A, B, and C. The accompanying illustration is designed to represent the ability, or failure, of each man's coronaries to carry enough blood to meet the oxygen needs for light, moderate, and vigorous exercise.

Subject A is a physically fit man. Look at the circles that represent the blood flow to his heart muscle. Look at the circles that represent

Exercise stimulates you to breathe faster and deeper. Vigorous breathing not only brings in the needed oxygen for your blood to carry to the tissues, but it also strengthens and protects your organs against disease and keeps them fit for action.

his coronaries. They stretch with each increase in activity to carry more blood to the heart muscles. Now look at the bars to the right of the circles. As A increases his exercise and thus raises his oxygen need, the increased needs of each level of activity are met by an increased flow of blood. Subject A can step up his exercise to a reasonable extent without running short of oxygen and gasping for breath.

Subject B is habitually sedentary. His arteries, though able to expand to carry more blood when a great need arises, fail to respond because they are not accustomed to sudden increased demands. The bars that represent B's oxygen exchange show that since his coronary blood flow does not increase, his oxygen supply becomes inadequate as soon as he begins to exercise. He incurs an oxygen debt just as soon as his oxygen reserves are used up. Shortness of breath will soon force him to slow or cease his activity.

Subject C is a man who has been sedentary so long that disuse has caused the elastic tissue in the walls of his arteries to lose its ability to stretch, and the muscles waste away and become thin and weak. Worse still, deposits of "body cement" (cholesterol) have nearly filled the artery opening so that not enough blood can get through to supply sufficient oxygen for even ordinary movement. The bars indicate that he never gets enough oxygen to meet his needs. The least increase in activity causes shortness of

breath and a more strenuous effort could precipitate a coronary attack. Should you be in class B or C, don't give up! Read on; you *can* improve your condition.

Oxygen Needs

The very best performance of heart and blood vessels could accomplish little unless, with each circuit through the lungs, the blood picks up a fresh supply of oxygen and gives up its load of carbon dioxide. If you are a sedentary person, habitually "at rest," much of your lung surface is little used and a large proportion of your air cells are collapsed. Sitting too long bent over a desk or slouched in an easy chair cramps the breathing movements, particularly in the top of the lungs. It is in this least used area that tuberculosis so often develops.

How does exercise help supply oxygen needs? It stimulates you to breathe faster and deeper. Your diaphragm, a dome-shaped sheet of muscle fibres dividing your chest from your abdomen, contracts with each breath and pulls downward. This in turn creates a vacuum in your chest cavity that sucks air into your lungs. Then when your diaphragm muscles relax and rise, the air is pushed out. This forces open millions of air cells that you do not use in sedentary living. Vigorous breathing not only brings in the needed oxygen for your blood to carry to the tissues, but it also strengthens and protects your organs against disease and keeps them fit for action.

Muscles

But what could you do with a good heart, good blood vessels, and good lungs if your muscles were wasted away? Fifty per cent of your body weight is, or should be, muscles of both voluntary and involuntary kinds. Some forty per cent of your muscle mass consists of the

voluntary type, which responds to your wish. If you desire to move part or all of your body, your muscles will respond whenever and wherever you command. They will lift a weight, walk, run, throw a ball, climb a tree, or engage in any physical activity you decide to perform. But they cannot make the decision to act—that's up to your will power.

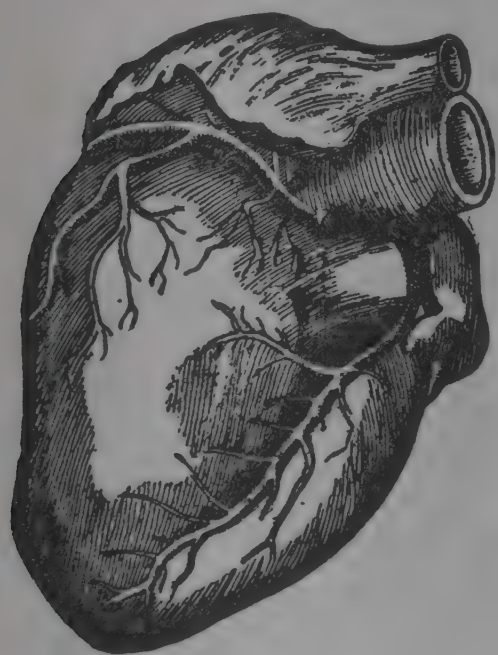
While muscular work greatly strengthens physical power, man's inventions have left little need for the use of muscles. The large muscles of the body are little used after childhood and early adolescence. We must be concerned on the need for reconditioning our neglected human machinery.

Of course, it is possible to exercise your voluntary muscles at will, but what about your involuntary muscles? They neither work nor rest just because you want them to. They function more or less automatically. Your heart beats, your blood vessels dilate and contract to push the blood through its circuits. Your diaphragm rises and falls in breathing, and your digestion proceeds with rhythmic contractions (peristalsis) of your stomach and intestines—all without any thought on your part.

If, then, your wishes have little to do with the work of the organs composed of involuntary muscles, is there any way you can strengthen them through exercise? There is. Vigorous exercise sets off a tremendous chain of events. Your voluntary muscles become living furnaces that demand more oxygen with which to burn more food to provide more energy for work. So your heart speeds up to meet the increased need. As it contracts with vigour and then relaxes, it gets a tremendous workout, as do your blood vessels. Each heartbeat forces a fresh volume of blood into your arteries, which must dilate to make room for it and then contract to

push it on. As heart and blood vessels relax and contract to circulate the blood, they exercise, just as your hand exercises in opening and shutting. And your breathing apparatus gets its exercise at the same time with each fall and rise of your diaphragm as it suctions air in and forces it out of your lungs. Your digestive tract also responds to moderate exercise, such as brisk walking, with more vigorous movements.

But this is not all. As soon as muscular activity burns up the available food, you feel hungry. This arouses your entire gastrointestinal tract to get ready to receive, digest, and absorb the expected food. Your brain directs the activities, and every cell, tissue, or-



gan, and gland contributes its share to the success of the effort. Exercise, whether it is mowing the lawn or climbing a mountain, makes you hungry and your whole body comes alive.

Bones

But your muscles would be a shapeless heap if you had no rigid frame-work. Bones are the girders that give shape and strength to your body. But they are not inert material such as the steel and cement that give form to a building. Bone is living, dynamic tissue composed

of a meshwork of gelatinous protein called collagen (from which gelatin can be made) in which the mineral salts of calcium, phosphorus, and magnesium are held.

If you want your bones to be dense and strong, you must continue to be active. Inactivity causes bones to lose minerals and become weak. Astronauts on space flights lose minerals even when their freedom to move about is restricted for only a few days. As soon as their mission ends and they begin to exercise again, the loss is restored.

There is no question about a young person's ability to improve his physical fitness through the practice of right habits. But if you are middle-aged and unfit, can you be helped? You certainly can! Your

If your wishes have little to do with the work of the organs composed of involuntary muscle, is there any way you can strengthen them through exercise? There is.

condition may never be what it might have been, but it can be greatly improved if you adopt a suitable programme. Your body will respond to the demands you put upon it to the limit of its ability. By *gradually* increasing your activity, much can be done to better your condition. The type of exercise you engage in is less important than that you do exercise. Choose to suit your taste—garden, walk, swim, hike, cycle. Better still, vary your exercise so all your muscles get a chance to work.

Should your arteries be seriously deteriorated, have your physician

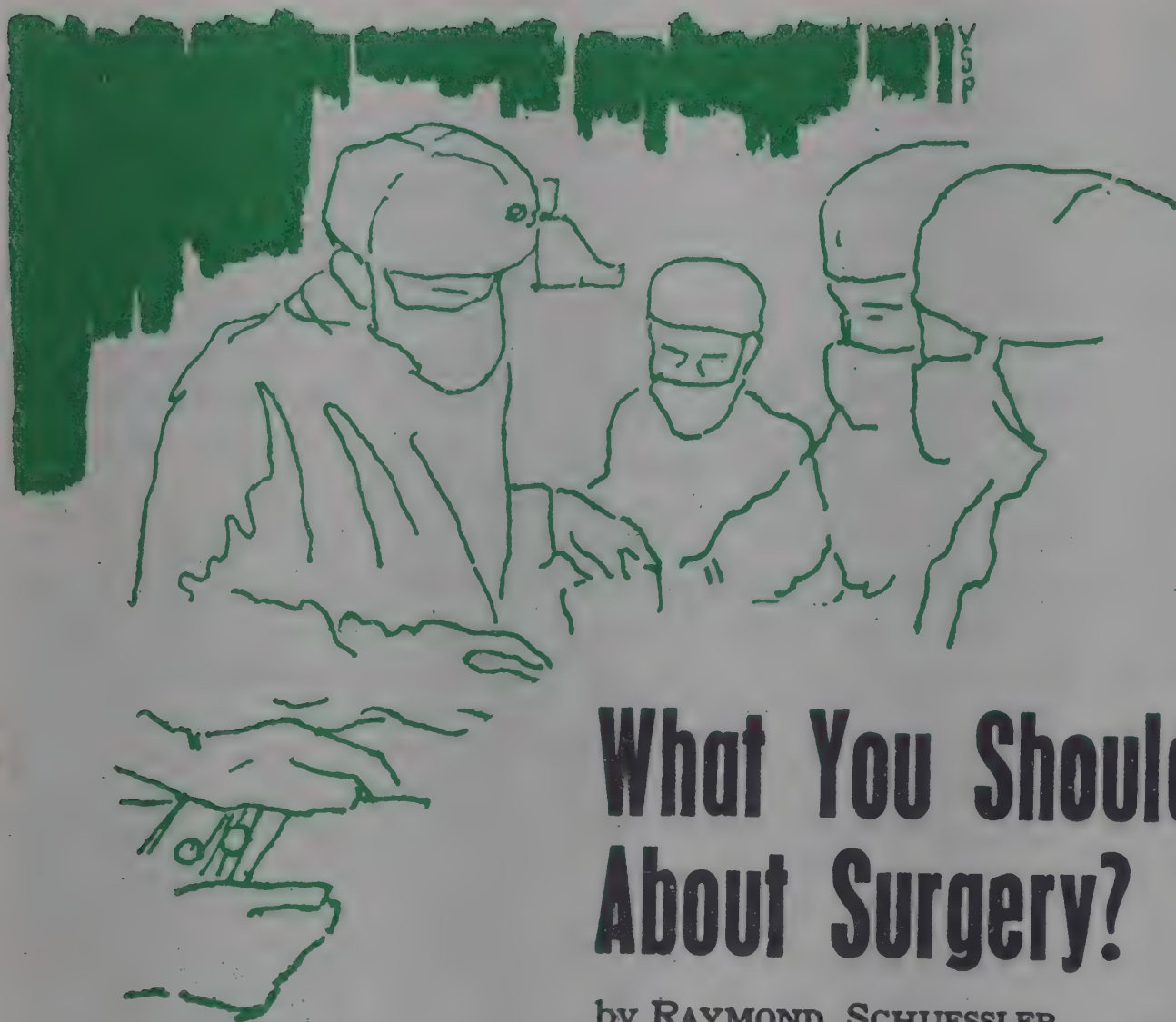
advise you. A carefully regulated programme will bring your smaller arteries into more active use and will develop them to carry the extra blood needed for a more active life. There are many examples of people who, after suffering severe coronary attacks, went on such a programme under medical supervision and so improved their condition as to be able to engage again in normal activities.

Walking Best

Walking is the simplest type of exercise and the best all-round prescription for healthful living. It is free, requires no equipment, and is suitable for all ages. It can be done at your own convenience, either alone or with a companion. Dr. Paul Dudley White has said, "The best way to keep fit is to walk and walk and walk."

In walking, the big leg muscles contract and squeeze the veins inside the muscles and so pump the blood upward to the heart. One third of the work of the circulation of the blood is done by the leg muscles when you walk, leaving only two thirds of the work for your heart to do. Jogging (running and walking alternately) has recently become popular. But if you aspire to jog or run, first learn to walk. The important thing for you to do is to adopt some form of exercise and do it regularly, even if you have to buy a dog to help out. Calisthenics is an artificial type of exercise, but in an artificial world such exercise is better than none at all.

Your whole body rejoices when you are in good physical condition. And fit people are in demand today as they were in ancient Egypt where Pharaoh wanted "men of activity" to be rulers with him. You may never be called to rule a kingdom, but it's up to you to rule yourself. Start exercising—**TO-DAY!**



What You Should Know About Surgery?

by RAYMOND SCHUESSLER

Many people regard surgeons with awe and dread, but today's surgeon is a scientist whose nimble fingers and techniques can repair hearts, nerves, and brains. He has helped boost life expectancy by more than twenty-two years since the turn of the century.

The dread of surgeons probably is a throw-back to the primitive days of medicine, when in the thirteenth century, barbers, bathkeepers, and executioners took up the practice as a side line.

"Surgery has progressed with amazing speed after the last year or two, and new

miracles are pending," said Dr. William L. Estes, Jr., former president of the American College of Surgeons. "We shall even solve the major problems now standing in the way of successful transplanting of human organs," he said.

Only a few years ago many operations were literally a race with time, because few patients could stand the depressing effect of prolonged anaesthesia. Today some operations run to ten hours. Many patients are even fed while surgery is under way—nourishing glucose and vitamins are dripped through a

sterile tube into a vein. When the operation is over the patient emerges from his sleep as the anaesthesia wears off.

Some patients fear that surgery will begin before they are unconscious, but such anxiety is needless. Individualized anaesthesia suited to each patient's need is administered by a qualified, competent specialist. Anaesthetic substances and techniques are carefully administered and controlled.

Greater comfort is another point. Swift, pleasant inductions have replaced the terror of being suffocated by ill-smelling ether. Post-surgical

nausea, surgical shock, ether pneumonia, once major problems, are now a rarity.

A thorough physical examination is part of the usual preoperative routine, whether given by the patient's physician or a hospital doctor. Laboratory technicians check the blood. The anæsthetist may have to substitute a slightly different anæsthetic if some irregularity shows up, such as unsuspected diabetes, an enlarged thymus gland, or a weakened heart. A child may have a prolonged bleeding time, which means that the blood will not clot normally. He can be treated with injections of vitamin K, and the operation can proceed as scheduled.

Preoperative Routine

The examining physician sends his observations to the surgeon. Any evidence of irregularity is reported so that the surgeon and the anæsthetist can plan accordingly.

Much of the success of an operation depends on the patient. He can be of considerable help to the surgeon by co-operating with the doctor in avoiding excess weight and in maintaining a healthy attitude toward an operation.

Dr. Benjamin R. Reiter, in his book *You and Your Operation*, spells out what a patient can do to help his surgeon and himself.

1. Give the doctor a thorough history. No part in the study of a patient is more important than a good medical history. The first part of a good history is the patient's detailed account of all symptoms in orderly sequence from the beginning of the trouble. Your doctor will be interested in any observations made by other doctors who have seen you, but you should not try to offer your own diagnosis. That is his job.

After you have told your story he will begin to quiz you more specifically about various symptoms. Many of the questions you can answer in a simple manner. You will not be able to answer others, and it is wise to say, "I don't know," rather than guess.

At all times try to stick to the subject. To the question, "When did you have the last attack of pain?" you may answer, "In June, 1969." Be specific. The question, "How often do you have these attacks of pain?" can be answered by saying, "Three or four times a year."

A doctor's job is not unlike that of a detective. The villain is the disease bothering you. Your straightfoward story is the first thing he wants to hear. Then he will quiz you for further clues. Finally by physical examination, X rays, and laboratory tests he will hope to find evidence of the villain causing your trouble.

Sometimes it is relatively

easy to make a diagnosis, and at other times it is difficult. Be patient and be honest. A positive answer to a relatively insignificant question may be the clue for which your doctor is looking.

2. Have confidence in your surgeon. When you select a surgeon to perform an operation you are making an important decision. You are selecting a man into whose hands you are placing your life.

Let him make the decisions, and you abide by them. He has had years of training and experience in his profession.

If he wants to have you in the hospital a few days before the operation, be agreeable. He has his reasons, which he will explain to you.

Having confidence in a man is difficult to define. If you feel confidence, you will know what it means. If you have confidence in your surgeon, for your own sake show it by accepting his decisions.

3. Rely on one surgeon. In the practice of surgery no event more frequently becomes disturbing to a patient than meeting someone who takes it upon himself to offer professional advice.

Remember that no two operations are exactly alike. No two people respond to surgery in exactly the same way. Comparisons are dangerous and unreliable. Furthermore, advice from such

sources too often adds another even more serious condition to your problem—worry. Sometimes that is worse than the operation. It is best to interrupt these well-intentioned people with thanks.

4. Stay thin. For your own sake stay thin. Surgery is easier, your convalescence more rapid, and the chance of complications is reduced if you stay thin. The people who over eat are digging their graves with their teeth. Surgeons say, "I would far prefer to operate on a person aged seventy and thin than on one who is fifty and fat.

5. Get a good health book and learn something about your body.* Such a book can show you how the body works, what certain symptoms mean, and how various illnesses are treated by the doctor in co-operation with the patient. The patient who has a clear understanding of what is wrong with his body is likely to carry out the doctor's orders properly, is likely to have a good mental outlook toward his illness, and consequently is likely to recover quickly.

Follow these suggestions, and you will be giving your doctor the most valuable help you can — co-operation. In return, he will help you toward full health.

**For an excellent suggestion, see offers on pages 2, and 100.*

TO SLEEP SOUNDLY

by J. D. HENRIKSEN, M.D.

From all sides we hear about the importance of not wasting energy or material. Mass production through wise planning and preparation by streamlined automation has the purpose of keeping down costs, getting uniform results, and making high quality products.

In using human machinery we are able to measure economy of muscles and their work. If the muscles are well trained, rightly nourished, worked at proper speed and in the right amount, twenty-five per cent of the energy used will produce good results. This efficiency is higher than that of the best steam engine and only a little lower than that of the Diesel engine.

If we misuse the human body by overfilling it with food of careless quality and mixture, overloading the muscles and demanding prolonged function, the efficiency of the muscles will fall. One of the most important factors in working is rest. This means to stop working for a while and rest before the economy lowers. Rest before you get tired.

Because I am going to talk about how to sleep soundly, I will say that records indicate that healthy adults need about eight hours' sleep every night, with very little difference among subjects of various ethnic groups, occupations, and intelligence. This means that we need to stay in our beds about a third of the time.

What happens when man goes to sleep has puzzled doctors throughout the centuries, but we know little more about the mechanism than our ancestors knew.

It is possible to study the electrical brain waves during sleep and see that the waves slow down. Large one-per-second waves develop when a person falls into deep sleep. His muscles relax, his heart slows down and his blood pressure and temperature fall. We know that sleep is different from unconsciousness, coma, or general anaesthesia. People who need more than eight hours' sleep should have a thorough physical examination, because usually there is a metabolic disturbance or a neurological disease present.



Getting too little sleep is called insomnia. It has three patterns:

1. Difficulty in falling asleep after retiring.
2. Intermittent waking through the night, possibly at varying times.
3. Wakening too early.

Some people do not need as much sleep as others, and it has been proved that sleeplessness will not harm the body. However, it often causes nervous distress, with enormous consumption of sleeping tablets. Observing people who are sleepless reveals that they get more sleep than they think they do. The reasons for most cases of sleeplessness are pain, severe headache, itching (a symptom that seems to be worse when the person is lying down quietly), restless legs, cold

feet, burning stomach, pain in the colon, nervous excitement, anxiety, worry, depression, and difficulty in breathing because of heart disease or too little lung function.

In a few cases chronic sleeplessness may be the result of psychosis (mental illness). A nerve specialist expressed himself this way: "Man may overcharge his nervous system too much. There is a tendency to perform more things than the brain is able to command, so that you will soon reach a point of bursting or explosion, with no ability to regenerate. It is like a chronic overstretching of a rubber band."

People with mental illness need special help often in the form of psychotherapy and tranquillizers.

Otherwise, for sleeplessness medicines should be used sparingly and certainly not every night.

Then there is the person who cannot find rest. He turns around in the bed, restless, with palpitation of his heart and pulsation in his ears. His brain works fast. He goes over all that happened yesterday and plans what he is going to do tomorrow. He is wide-awake, depressed, or agitated. The next day he gets up and begins his work without interest or vitality.

In order to go through life awake, we must first sleep soundly.

Fatigue Versus Inactivity. The wealthiest and the wisest king who ever lived, Solomon, was sleepless. Apparently he used his nights to write Proverbs and Ecclesiastes.

Some people do not need as much sleep as others, and it has been proved that sleeplessness will not harm the body. However, it often causes nervous distress.

From experience he said: "The sleep of a labouring man is sweet, whether he eat little or much: but the abundance of the rich will not suffer him to sleep" (Ecclesiastes 5:12).

Physical fatigue gives sleep much more readily than mental fatigue does. In fact, a mixture of both is excellent for early sleep after retiring. Inactivity through soft living and dozing off several times during the day may leave you wakeful when it is time for you to go to bed. People who have difficulty in sleeping at night should not take a noontime siesta. When you have worked with your brain in business all day, it is important after supper to have a time of physical exercise or work that will make your muscles and body tired.

Firm Bed Verses Soft Bed. It is especially important for people with weak muscles and spinal bones and joints to sleep on a firm bed. In a soft bed they have no support, and as a consequence they suffer aches and pains the next day.

Darkness Verses Light. It is natural to sleep at night, because it is dark. A soft indirect light in the room does not prevent sleep. People who are in a deep sleep can be awakened by someone gradually exposing their room to some strong light.

Quietness Versus Noise. One night in a city hotel I could not fall asleep because a band was playing around the corner in the hotel bar. After lying awake for an hour or two I called the switch-

board at the reception desk and asked how other guests tolerated the noisy music. The receptionist apologized and said they had a loud-speaker system which they used in early evening to attract guests. Someone had forgotten to turn off the loud-speaker to the street outside the bar. Minutes after our telephone conversation the loud-speaker was silenced. Then it was easy to fall asleep.

People who live in cities get used to special noises from street or highway. Trains pass without disturbing their sleep. If something unusual happens, such as an explosion, they immediately waken.

People who travel much get used to falling asleep on trains,

Factors for and Against Sleep

For	Against
Fatigue	Inactivity
Firm Bed	Soft Bed
Darkness	Light
Quietness	Noise
Relaxation	Tension, Pain
Warm Feet	Cold Feet
Empty Stomach	Full Stomach
Herb Tea, Juice	Coffee, Tea, Cigarette
Sleeping Medicine	Amphetamine

boats, or ferries without being disturbed by travel noises. Others find this atmosphere disturbing and cannot get any rest. If you are lying in bed only half asleep but still aware of some of your surroundings and with some thoughts going through your mind, you still are resting your body and a great part of your brain. If this happens once a month or so, it will not disturb your general health or ability to do active work the next day.

Relaxation Versus Tension.

Tension can create spasm in the neck and shoulder muscles sometimes accompanied by neuralgic pain in the temples or back of the head. This reaction is caused by pressure on the neck nerves that supply these areas. Tension of the muscles creates pain. This can happen if you drive a car and sit in the same position for hours at a time or work in a certain position to perform a repeated task without relaxation.

People who have a tendency toward neck and shoulder muscle spasm should perform the following exercises:

1. Let the head fall forward and relax. Let it fall backward and relax.
2. Rotate the head in a wide circle from left to right and from right to left.
3. Shrug your shoulders high and let go several times.
4. Perform circular movements with your shoulders—forward, upward, backward, down, and in the opposite direction several times.
5. Tighten your shoulder-blade muscles on a count of three and then relax them.

Performing these exercises before bedtime may loosen you up and help you to become relaxed by the time you get into bed.

Some people slump so low in the bed that they get a numbness, tingling, and creeping feeling in their fingers and hands from pressure of the foot of the bed on nerves. They will get relief from using the three-pillow system: one pillow under the head, one under each shoulder and arm, and lying on the back with the arms slightly elevated. Thus all parts of the body are relaxed in a balanced way.

In the attempt to break the vicious circle between psychic tension and static muscle contraction,

different methods have been tried. Dr. Edmund Jacobson of Chicago taught his patients relaxation by training them to observe the difference between contraction and relaxation of various muscle groups and having them feel the difference between the two factors.

The patient is placed in bed with support to neck, back, arms, and knees. He is instructed to perform a certain movement that increases the tension in a muscle. Then he is asked to relax more and more in the same muscle group. He is taught to begin with arm muscles and proceed to leg muscles, face muscles, and other muscles until he has complete control over all the skeletal muscles.

With the method used by the German doctor. J. H. Schultz, the patient is made to rest in a lying position with closed eyes and complete quiet and has to repeat several times, "My arm is heavy. I cannot move it. My head is heavy. I cannot move it." And on to other body parts.

Sometimes the feeling of heaviness creates the feeling of heat creeping over the body, arms, and legs. The doctor makes sure that the patient does not press his eyelids together too tightly, but merely has them closed and relaxed. The patient then opens his mouth slightly and breathes shallowly and slowly, saying on inhalation, "Re-e," and on exhalation, "La-ax." He repeats this drawn out broken word "ree-laax," all the time concentrating on it only, with shallow breathing, leaving out all other thoughts. This is a monotonous ritual.

If the patient is interrupted by an ache in his body, he must continue to say, "Ree-laax," and make up his mind not to move nor allow any itching or little pain to disturb him.

If there is any outside noise—a car passing or the wind blowing—he must say to himself, "I am happy. I am not outside my house travelling in the wind but in a nice comfortable bed, warm and happy, ready to sleep." Then he must continue repeating "Ree-laax," breathing shallowly.

After a few minutes in this position he usually yawns, and that is a sign that he is half-asleep. At that point (which is critical) it is important to continue saying in his mind as he breathes shallowly and slowly, "Ree-laax," so that no other thoughts or ideas or memories or plans for the future come in and disturb the relaxation and inducement to sleep. If during the night something wakens him this method can be repeated.

If we misuse the human body by overfilling it with food or drink of careless quality and mixture, overloading the muscles, and demanding prolonged function, the efficiency of the muscles will fall. One of the most important factors is REST. This means to stop working for a while and rest before the economy lowers. Rest before you get tired.

In some cases he might put on the light and write down in a notebook things he wants to remember the next day that perhaps he has been thinking about during the night. He may read a book or magazine having light material that will not strain his mind but just keep him going for a little time, and then put out the light and try to go to sleep with the same routine.

Several years ago I had bursitis in my right shoulder and was often disturbed with pain at night, especially if I was lying on my right side. I usually got up and did some exercises to relax the pain. After a short while it was possible to go to bed and fall asleep in a changed position.

It is easier to perform the relaxation programme when lying on the back with pillows supporting knees, arms, and head, because this is the most relaxed position of the muscles.

Warm Feet Versus Cold Feet. It is bad to go to bed with cold feet. People who have a tendency to get cold feet, especially when sitting around during the evening, can do several things to change their cold feet to warm.

1. Take a brisk walk or a short run outside for five or ten minutes.

2. If that is not possible, do some knee-bending squatting exercises, tip-toeing around the house, or walking on the heels for a few minutes.

3. A neutral to warm bath can be helpful so long as it is not too

warm. Heat makes the heart, lungs, and metabolism increase in function. A bath with a temperature of 90 to 95 degrees F. is good. Take the bath for five minutes up to half an hour, and afterward dry yourself, dress for the night, and go to bed. This procedure helps the relaxation process and eases the way to sleep.

Another way to get good circulation in the legs is to take a temperature-contrast bath. Place your feet for two to five minutes in really warm water and then put them for half a minute in cold water, and repeat this routine five or six times.

When some people get to bed they suffer from restless legs or

cramps in the legs. Actually, this reaction is caused by slowing of the venous flow from the feet and the legs or decreased circulation in arteries, veins, and capillaries. If there is oedema (swelling) in the feet and legs, this swelling usually is the cause. If there is fluid in the leg tissues, there will be involuntary muscle contraction that can be unpleasant and keep the person awake.

Elevation of the legs often is an advantage—and even elevation from the hips to the feet. A pillow under the legs does not help too much. It is best to put one or two bricks under the legs at the foot of the bed. Also a wedge-shaped elevation under the mattress can be used.

A tablet combining calcium phosphate and quinine has been used with good effect for people who have unpleasant contractions in the calf muscles at night. Also a heating pad under the calf.

Empty Stomach Versus Full Stomach. Dr. Fred Plum, professor of neurology at Cornell University, Ithaca, New York, said that people who suffer from sleeplessness should be advised to eat light evening meals and avoid such stimulants as coffee and tea after noon.

When the stomach is full and digestion is in progress, blood circulation and metabolism are increased. It is difficult to reduce the metabolism when you lie down to sleep. Eating in the evening often increases the amount of stomach acid, and you have a painful burning feeling in the stomach when you want to go to sleep. A light evening meal eaten three or four hours before going to bed is preferable to a heavy meal, which will cause indigestion.

If you think you need a drink in the evening, it is preferable to

drink warm herb tea or juice rather than to eat. If you have stomach-acid burning symptoms, hot milk with a little honey is recommended.

Avoid coffee, tea, and cola drinks because of the amount of caffeine in them. Caffeine is a nerve stimulator, and it makes the blood pressure and pulse increase to the extent that the drinker often feels palpitation of the heart and the pulse beating in his ears when he is lying on a pillow. This stimulation keeps him awake.

Sleeping Medicine Versus Amphetamine. For a long time amphetamine has been used as a dietetic medication to reduce appetite. It has an exciting, nerve-stimulating effect that for a few hours seems to relieve all kinds of fatigue. The thinking is faster, speaking is fluent, and the person is happy and gay. This is why amphetamine is classified among the psychedelic drugs and prescription for it has been restricted. The use of amphetamine in a reducing programme is now out of the question.

The use of sleeping medicine should be limited to people under treatment for severe illness. Even they should receive it only if it is needed to make the treatment effective and to facilitate recovery.

The least harmful sleeping medicines are antihistamines, which are used for allergy and seasickness. This class of medicine reduces the sensory-nerve impulses in the skin and in the vestibule and hearing apparatus of the internal ear. It gives a drowsy effect and induces sleep easily without after-effect the next day.

Tranquillizers, which are used in medicine for highly nervous patients, also induce drowsiness and sleep.

People who take phenobarbital become addicted to it and need to

use more and more. For that reason regular use of this group of medicines is warned against.

Chloral hydrate is often prescribed for a time for patients who have delirium tremens (an acute mental disturbance) or who need to be taken off alcohol, phenobarbital, and other drugs. Other medications sometimes have the after-effect, the next day, of making the person feel unable to get started. Chloral hydrate does not produce this problem, although it can be slightly irritating to the stomach.

"As . . . [a man] thinketh in his heart, so is he." If you are full of worry and anxiety, you will have some difficulty relaxing. Cultivate an attitude of cheerfulness, show a sense of humour, and fill your mind with beauty in the form of music, reading, and pleasant company to make it much easier for you to relax and have a good night's sleep.

Relaxation is a natural condition after a lot of activity. In the evening then you feel a natural desire to relax and sleep, and you do not want to bother with further physical strain or mental stress. Your body calls for rest.

In the body there is healing power if the need for rest is fulfilled. A doctor can advise and treat, but nature heals. The power of sleep allowed to take place at night restores the mind and body for the next day's activities, physical and mental. When a patient who has had fever and pains falls into a sound sleep, we feel sure that he will soon be on the mend.

Faith is essential to therapeutic ingredients and is a great source of help in renewing strength and vitality. Have faith in your family, in your home, in your work, in other people. Have faith that you can go to sleep when you are tired. ***

LIVING WITH ARTHRITIS

by RAY EDLEN

We are not going to promise a cure for arthritis or prescribe any drugs. The medical profession and the hospitals have been striving for this accomplishment a long time. Most arthritics are familiar with the various forms of therapy. In spite of years of costly research, one fact remains: No cure has been discovered as yet.

However, the plight of even a bedridden arthritis victim is not hopeless. For twenty-five years I have studied and lived with the mysterious ailment, or disease, arthritis. I believe sincerely that the following regimen if applied will prove to be of great benefit, provided the laws of good health in general are followed.

This programme will cost you nothing. It is a workable down-to-earth method.

First Step

Aside from the crippling aspect of arthritis, pain and emotional depression are the most disagreeable factors that must be endured. It is a mistake to think that because a person has pain he is guilty of some misdemeanour or is being punished. Indeed, this planet we live on is closely allied with pain and suffering.

After the arthritic has exhausted the conventional pain killers, what can he do? Practicing stoicism, or gritting his teeth and bearing it, is not much help.

A quiet, peaceful mental acceptance of the fact that in suffering we are face to face with an adversary who cannot be overcome by reason is the first step in climbing the long and rocky stairway that will help us rise above our affliction.

Regardless of where we live, we must endure some temperature and barometric pressure. People who can do so should seek the ideal atmosphere for them. But where is the ideal weather for the great caravan of arthritics? Dry air, low humidity, and a nonfluctuating thermometer—not too high and not too low—generally is conceded to be best.

If you can do so, try to find the best climate for you, but do not burn your bridges behind you. Many people have given up home, friends, and employment to find that in their new location they have benefited only for a time. That unwelcome bedfellow Mr. Arthritis again finds them and moves in without being invited, in spite of the new surroundings. Too many people find that the pain of arthritis has not been reduced and only the pocketbook has been cut down.

Mental Housecleaning

In the conquest of pain for those seeking daily improvement, whether ambulatory or bedridden, it is necessary to change their spots. Depending on the person and in varying degrees, arthritics must have

Our look should be a forward look. There is no defense against growing old. If we would condition ourselves mentally we need not be troubled by the problems of age.

some mental housecleaning. This means that at any price they must drive out all depressing, negative thoughts if they are to have some taste of victory in their battle. This is no easy task, for mental depression has always been a companion of arthritis. But it can be done, and it is worth striving for. .

We are all creatures of mood. Most of the time we are happy, sad, grouchy, bitter, moody, or sharp. Not all, but most arthritics adopt a moody, depressed, and bitter attitude. It is the arthritic, more than most people, who needs to hack away negative encumbrances. Intense yearning, bitterness, and self-pity do not help.

How can a person who is barely able to move or is bedridden, with intense pain, become cheerful? We all have an inside and outside. In his plight the arthritic cannot do much about the outside. We must reverse the process, and by controlling what is inside we can make the outside problems diminish and their severity lessen. What we see on the outside is always determined by what we permit on the inside.

We must entertain cheerful, gay, pleasant, and positive thoughts. We must develop a happy conscience, with prayer at intervals. If we are to make at least some attempt to look at the world, at the outside, with rose-coloured glasses, it is well to remember that the colouring always comes from the inside. We must find help in spiritual regeneration.

The worst way to live with our arthritis is to allow it to become an excuse for doing nothing.

Best Therapy

Employment or some occupation has been found to be the best possible therapy for arthritics still able to carry on. They are always advised to continue as long as possible. Most arthritics need to be busy. The nonambulatory patient must use his eyes, hands, and ears as never before.

It has been found best to set up a workable schedule and maintain it daily right up to retiring. Everyone possesses innumerable aptitudes and abilities. For some, wise and judicious reading helps. For others, some activity such as painting or learning to play a musical instrument is rewarding.

Maintaining correspondence with friends, joining a pen-pal club, or short-story writing is excellent therapy. Radio and television are of untold interest, and they should be worked into the arthritic's schedule. The list of things to do is long even for the man in a wheelchair. It is surprising what a person can do if he makes the attempt. Stories are published of the accomplishments of people in wheelchairs. Each new day should serve as an outlet for some form of creative expression.

Positive Thinking

We must through frequent prayer become convinced that our condition will improve. The important factor in ridding ourselves of fear is to be positive that our petition for help is heard.

People are likely to walk in the direction they are looking. The arthritic must have positive thoughts and cast off old negative worries.

Expressions of sympathy from other people are useless, and friends should avoid them. The association to be cultivated is one of cheerfulness, optimism, and humour. Mournful people should be shunned. As we travel along the bumpy arthritic highway, we can improve the scenery and soften the jolts by clearing our windshield from the inside.

If we look closely we can see some helpful highway signs. After we discover them and give them some thought, we may wonder where they have been hiding. The fact is that they were always there. We did not see them. Now that our pace has lessened, we must take time for them.

In the improvement of our thinking, our selection of reading material must be wise. A well-planned programme of reading on a variety of subjects can be of great benefit. There is great spiritual and therapeutic value in reading, speaking, and writing happy, inspiring words. They are magic sparks to us.

Faith

Unless we have faith, harmful forms of thought will enter. Daily practice of our faith can help a lot. Fears and anxieties have a way of melting in the warmth of our faith. In the exercise of faith the will becomes strong. Quiet acceptance of our plight coupled with the assurance that is but a temporary thing, not to be compared with the joy and reward that we will win later on, does away with mental confusion.



Most arthritics need to be busy. Employment or some occupation has been found to be the best possible therapy for arthritics still able to carry on.

In ridding ourselves of unnecessary mental cares, what kind of thoughts shall we have? We are at our best when in humility we seek a Power greater than our own.

It is not for us to fathom why this burden has come upon us. We must dissolve our cares quietly, alone.

The arthritic must learn to rise above his circumstances. Once he has acquired inner radiation, it becomes contagious to others around him.

Prayer is the finest way to eliminate unpleasant moods. Persistence eventually brings peace. The inner light must be ignited in order to illuminate the outside of our lives.

One beacon that we should see, which is missed by many today, is happiness. It has been said that one of the most poignant and lonely ideas in our language is carried by the words "somewhere else." Somewhere else the sun is always shining. Happiness is always at the end of the rainbow, a long way off, somewhere else.

To live successfully with our arthritis, we must sweeten up the inside in order to improve the outside. Competing in the commercial mart, the arthritic may not be on equal footing with others, but in the pursuit of happiness his opportunity reaches a parallel.

Alcohol and pleasures of the flesh are not antidotes for unhappiness. The inner self must not be a battleground. Take an inventory of your shortcomings, and replace them with positive virtues.

A Forward Look

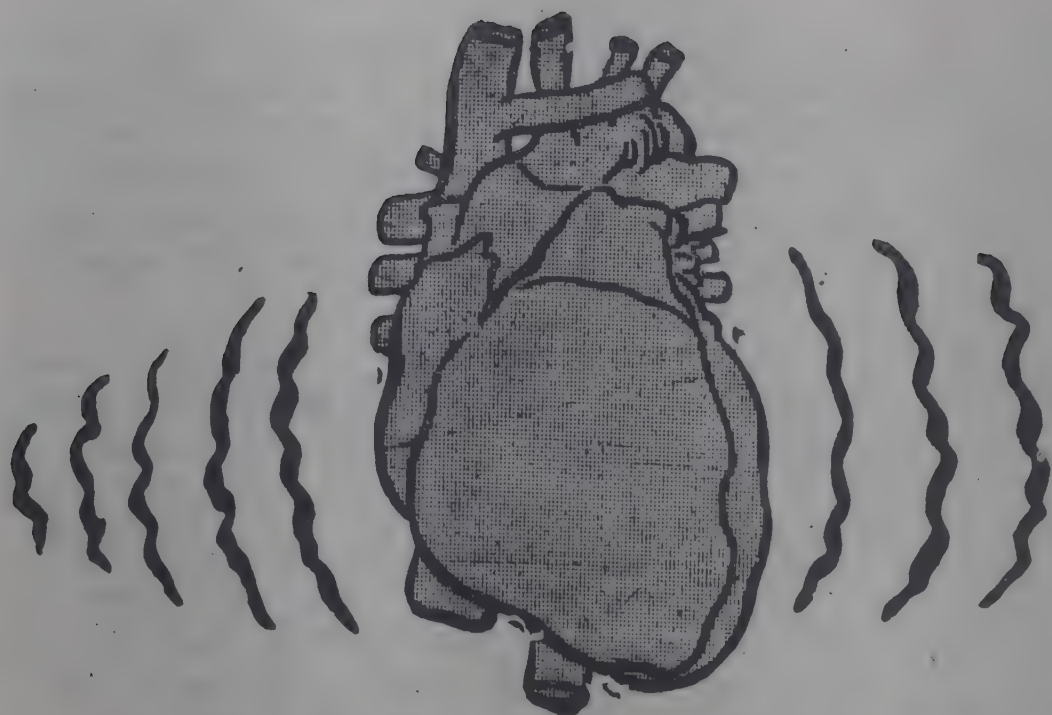
In the days of our youth the summers seemed longer, the snows of winter deeper, and the skies bluer. Our early heroes were always big. In retrospect, things somehow seem better in the good old days. Looking back is what we are told not to do in our pursuit of the successful way of life. The port of might-have-been is six miles east of the harbour of used-to-be. Sad to relate, it is filled with men who might have been successful at something.

Our look should be a forward look, never backward. There is no defense against growing old. Each age—youth, middle, and old—has its own particular problems. If we would condition ourselves mentally, we would not be troubled too much by any age. Our last years should be and can be the best. A quiet mental acceptance of the fact that they will be, should help each passing year in the culmination of wisdom and beauty, with a calm spiritual harmony.

A great number of arthritics literally limp through life, never very happy and never very sad; never a complete failure and never much of a success; always ailing, but not bad enough for the hospital. The real culprit seems to be in the thoughts. To live with our arthritis successfully we must ask God to remake us to the very core. The best minds of many generations have stressed prayer as the finest tonic.

Many arthritics will discover that they have taken the wrong road; they must turn around or detour for the long road back.

Eventually each must rediscover his own identity and try to fulfil some worth-while purpose or do whatever is necessary to bring contentment. ***



HEART DISEASE

As every schoolboy knows, the rhythmic contractions of the heart move the blood through the body, and this circulation of the blood is indispensable to the proper functioning of all organs, and indeed to life itself. About the size of a fist, the heart can send from 5 to 30 litres of blood a minute into the arteries; it contracts on average 70 times a minute, 100,000 times a day, 36 million times a year, 2,500 million times in 70 years of life. The more active we are, the greater the need for blood and the greater the work done by the heart.

The heart is more efficient and works much longer without repair than any man-made machine. It may of course be damaged by disease or accident, or by being treated too roughly by its owner. It suffers when subjected to the permanent overload created by hypertension, or when supplies of oxygen and the nutrients it needs are suddenly interrupted as in a heart attack.

It has become commonplace to speak of the growing epidemic of diseases of the heart and blood vessels as one of the greatest threats to our modern way of life. The increasing number of deaths and the invalidism caused by these diseases are indeed disquieting, especially as they often strike the young. But the body is adaptable and can survive even extensive lesions of the heart and blood vessels. A number of cardiovascular diseases, formerly con-

sidered irreversible and fatal, can now be effectively treated, and, sometimes, prevented.

By "prevention" we mean all the measures whose aim is to avoid an accident or a disease. Vaccination against smallpox is the classic example of prevention, as it protects the individual and at the same time keeps the disease from spreading in the community.

Cardiovascular diseases are not communicable from man to man, but certain life habits are. These habits are considered responsible for the development of cardiovascular diseases. Cigarette smoking for example, spread not long ago like social epidemic from man to man, from parent to child, from culture to culture. There are other equally harmful and equally "catching" life habits, imposed by advertising or by fashion, which may cause cardiovascular diseases to appear among groups of people where they were uncommon or unknown.

Changing a life habit is not like performing a simple vaccination. The subject has to practise continuous self-education, to alter the pattern of his life and improve his chances of remaining in good health, yet without losing the incentives that gave his life its meaning.

In chronic diseases, the purpose of prevention is not simply to keep a disease from appearing (this is often called primary prevention); it is also to

With so much known about heart disease, why is it that we do so little about it. As with other diseases, it is easier and safer to prevent heart disease than to wait till it strikes and then go through a strict regimen of rehabilitation.

how to prevent it

by Dr. Z. FEJFAR & Professor J. N. MORRIS

stop an established disease and even to reverse its progression (secondary prevention). We should like to describe here the possible ways of preventing cardiovascular diseases and show where further research is necessary.

There is no need to labour the points that cardiovascular diseases are the leading cause of death in most countries; that in many countries they are the leading cause of disability; that the disability and the early deaths they are responsible for entail economic losses far greater than the resources available for their prevention and treatment; and that, with the exception of rheumatic heart disease, women are less susceptible than men.

Preventable Heart Disease

Infectious disease. The fatal outcome of infectious diseases is often linked to a failure of the cardiovascular system. This used to happen often with diphtheria which vaccination now prevents. Even where vaccination has not been done, early treatment forestalls cardiac complications.

During the Middle Ages in Europe, gangrene often occurred in epidemic form. It was the consequence of an obliterative vascular disease of the extremities, caused by the consumption of ergot-infested rye. We have learned not to use con-

taminated grain, and the disease is now history, but it brings to mind the possibility that even today the artificial conditioning of much foodstuffs may damage our vascular system. A few years ago, an outbreak of heart failure was reported among heavy beer drinkers in parts of Canada and the USA. A check disclosed that the beer drinkers affected were drinking brands which had cobalt added. Tests with animals showed that cobalt, together with a lack of certain amino acids, can cause heart damage. It appears likely that the risk of heart disease is increased by a combination of cobalt and a lack of these amino acids in the diet of human beings.

Rheumatic heart disease can be prevented by the proper treatment of streptococcal infections and by the prolonged administration of penicillin to children who have had rheumatic fever. Unfortunately, rheumatic fever and heart disease are found mostly in the tropical and subtropical areas of the world where poverty and overcrowding make early detection and treatment particularly difficult. These areas teem with weak and breathless children, whose crippling valvular heart lesions surgery alone can repair.

Chagas' disease is another example of a disease whose prevention on a large scale has not yet proved feasible there where it is needed most. It is still endemic and can result in severe heart damage. It is caused by a parasite transmitted by a bug of the genus *Triatoma*, living in the roofs of thatched houses, or in cracks in the walls. Prevention can be achieved by killing the bug-vector either by spraying or by the construction of new types of concrete houses, with metal or tiled roofs. Though such attempts have proved successful, several million Latin Americans are still living in danger of infection. Furthermore, a number of victims must be treated for chronic cardiac failure, and those suffering from conduction defects and arrhythmias may require implantation of cardiac pacemakers entailing continuous medical supervision. It is obvious that resources spent on the control of Chagas' infection would protect a much larger number of people.

Cardiac neurosis. Most of us have had some time or other the experience of feeling "cornered" without any possibility of escape. The occasion might have been at school, a question that seemed impossible to answer or any of a number of similar situations.

Escape into illness is a way of saving face. Palpitation, odd stabbing pains in the left side of the chest, fainting spells—all these suggest cardiovascular trouble. The teacher might urge parents to take their child to the doctor. If a very insignificant change—due, for example, to the nervous state of

the young patient and to emotional hyperventilation—appears on the electrocardiogram, the words “possible heart condition” may be inadvertently uttered. They will stick in the child’s mind and may leave a deep impression. It has been observed that quite often one or both parents of a child prone to these manifestations are themselves neurotic. Therapy and prevention primarily consist in finding the first provoking cause, in gradual physical conditioning and in emphasizing why the symptoms are *not* heart disease.

Many adults who consult their cardiologist also suffer from no organic heart disease. Their symptoms are due to a state of anxiety or to repressed emotions; they suffer from what is known as neurocirculatory asthenia. The belief that their heart may be at fault can cause deep and lasting psychological effects.

Through Research, Control

Arterial hypertension is the most common circulatory disease in the world. Certain forms, such as the hypertension caused by inflammation of the kidneys, can be prevented by treatment of the affected organ. In most cases, the causes of hypertension are not clear. While we do not know how to prevent the onset of the disease, we have, however, very effective means of treating it. The number of available drugs is steadily increasing; they are becoming more effective and show fewer side effects. Adequate treatment does not only lower high blood pressure, it also stops the lesions caused by excessive pressure in various organs; it relieves the heart and decreases the chances of brain haemorrhage. It is the best way to reduce the frequency of cerebral stroke. The treatment should be available to all who need it.

Blood pressure rises gradually with age in most people; it may insidiously reach a dangerous point without the appearance of any symptoms, so that some hypertensive subjects are unaware of their condition. The importance of the disease is widely recognized and many countries are now taking measures to control it. The regular examination of adults, with blood pressure measurements, is a good way to discover those who need further surveillance and treatment.

Ischaemic heart disease. The prevention of ischaemic heart disease, the disease of the 20th century, is more complicated than that of hypertension. Ischaemic heart disease is associated with the general affluence of modern societies, with the abundance of food, with strain in social relations, noise, the fast pace of living, lack of exercise, and all the various forms of pollution, beginning with cigarette smoking.

The factors responsible for the development of heart disease increase with age. The main factors in childhood are overeating leading to obesity, and elevated blood lipids; later, cigarette smoking, insufficient exercise and sometimes high blood pressure, diabetes, and gout.

Its most dramatic clinical manifestation is myocardial infarction, commonly known as a heart attack, which is brought about by the sudden interruption of blood flow in part of the heart muscle following severe atherosclerosis of the coronary arteries. Heart attacks occur more often in men than in women and are becoming more frequent at earlier ages.

The prevention of heart attacks entails measures to slow down the development of coronary atherosclerosis. The measures may be urgent when there are already warning signs such as chest pain, which may appear at rest or only during effort. A less frequent sign is arrhythmia, in the form of premature ventricular beats during physical effort. The first manifestations that may lead a person to consult his physician—extreme fatigue, malaise, even changes in behaviour—are sometimes so vague that often they are not at first attributed to their real cause.

In the treatment of acute infarction, the guiding principle is to prevent arrhythmias during the first few hours after the attack and to control heart failure. The period of rehabilitation that follows should enable the patient to return rapidly to a normally active life. He should however remain under regular medical supervision for years after the attacks.

The factors responsible for the development of ischaemic heart disease increase with age. The main factors in childhood are overeating leading to obesity, and elevated blood lipids; later, cigarette smoking, insufficient exercise and sometimes hypertension, diabetes and gout.

It remains to be seen whether these factors account for most cases of ischaemic heart disease and whether through control of the factors we can prevent the disease. Current studies suggest that one solution of the problem might lie in that direction. We feel strongly that much research is still needed to clarify the effect on health that dietary habits acquired in youth may have in later life. What do we actually mean when we talk of fats or carbohydrates as factors of risk? What metabolic process is disturbed when

arteries become choked with atherosclerosis? We need more information on these matters before we can make a correct prognosis, choose between hospital treatment and home care with temporary nursing assistance, etc. We have only recently started investigating the role in our metabolism of some metals, chrome, zinc, cadmium, vanadium, molybdenum and nickel, which may block or trigger enzyme reactions.

Prevention, tailored to fit each case and culture, is becoming more and more part of the care of individual patients. On the other hand, there is growing insistence on the need for group prevention. There are now myocardial infarction clubs, in which those who have recovered from an attack can discuss their case and find advice. But we must go further than that. Emphasis should now be placed more on health than on disease, and people should be urged to lead lives that will increase their resistance to all forms of illness, without specifying any one illness in particular.

The Individual and the Community

We all agree that the right to good health can be exercised by any individual who seeks medical advice, whether he consults his own doctor or applies to some community service.

However, as far as cardiovascular diseases are concerned, the individual has so far and especially

Early retirement is not the answer to heart disease. On the other hand, physicians feel that people should remain fully active as long as they are able to do so.

in community services not benefited from all the help to which ideally in the present state of knowledge he is entitled.

Even in the countries with the best organized health services, a considerable number of hypertensive people go undetected.

We have the tools for health education. Radio, television, newspapers and magazines can reach the masses all over the world. It is up to health workers and governments to use these tools effectively—to make modern man as aware of his body as he is of his automobile or of local politics. Good health is a basic human right, and like all basic human rights it's worth fighting for. Public information is a major battlefield in that fight. And without a victory on

that battlefield, it would be illusory to think that man will be willing to change his present way of life.

The role of environmental factors in the development of cardiovascular diseases seems more and more obvious. Ischaemic heart disease is perhaps the outstanding evidence of man's maladaptation to the civilization he has himself created. For instance, there is clearly a contradiction between the wide-spread aspiration for early retirement and the medical reasons to remain physically and mentally active as long as possible. Contrary to the advocates of early retirement, physicians feel that people should remain fully active as long as they are willing and able to. The sociologist and the moralist may expatiate on the present malaise and offer their analyses; the doctor, who feels helpless in the face of a situation he does not have the means to control, can but point out the ever increasing danger to which man is now exposed, and express hope that his warning will be heeded before greater harm is done.

Conclusions

Let us sum up what can be accepted as good common sense.

1. Cardiovascular diseases are diseases like any others. They are not merely the result of ageing, or of degeneration with age. They can be treated and some can be prevented.

2. Much can be done to overcome hypertension. People should know their blood pressure level as they do their body weight. If one or the other should be rising, appropriate action has to be taken.

3. Cigarette smoking has become a symbol of adulthood, of sexual, sporting and financial success. But its promise is all too often cancelled by lesser performance.

4. You have your own heart, and also the hearts of your children, in your hands. The warm and happy family prepares the children positively for the future. Do not overload them with too many presents but give them your affection and the feeling of security. It will support them through life and help them to resist the strains of living. Too much of a good thing may harm your children.

5. The old saying that moderate eating and drinking will add years to your life is very true. A thin, muscular and lively child is better prepared for the future than if he is tubby, sedentary and TV addicted.

6. Children should be brought up to enjoy physical exercise and should get enough sleep.

We should all play active roles in solving the problem presented by cardiovascular diseases. ***

WHY YOUR BABY CRIES

WHEN RONNY was seven months old he would start to cry every night at nine o'clock and wouldn't stop before midnight, when he finally fell asleep.

He lived with his mother and father in an apartment house, and although their neighbours were considerate people and didn't complain about the nerveracking noise, Ronny's parents felt guilty (not to mention their displeasure and discomfort each night, as they attempted to quell their son!)

Ronny's mother was a very conscientious woman and did her best to find new ways and means to soothe and quieten her wailing son. Ronny was bottle-fed. His weekly gains were fine for his weight and age. Well, his mother shortened the intervals between feeds. She made sure baby's napkins were changed frequently. She tried changing his position and straightening his bedclothes. A visit to the doctor revealed no physical disorder.

And still Ronny went on crying.

One night, when the usual crying bout found his parents more exasperated than usual, they decided that one of the grandmothers should have a look at her grandson in action and perhaps find a way to comfort him. So, the three of them got into the car.

The car was started up, dad pulled out from the kerb, started down the road . . . and baby stopped crying. The happy parents drove around for a few minutes with their SILENT

by Dr. W. SCHWEISHEIMER

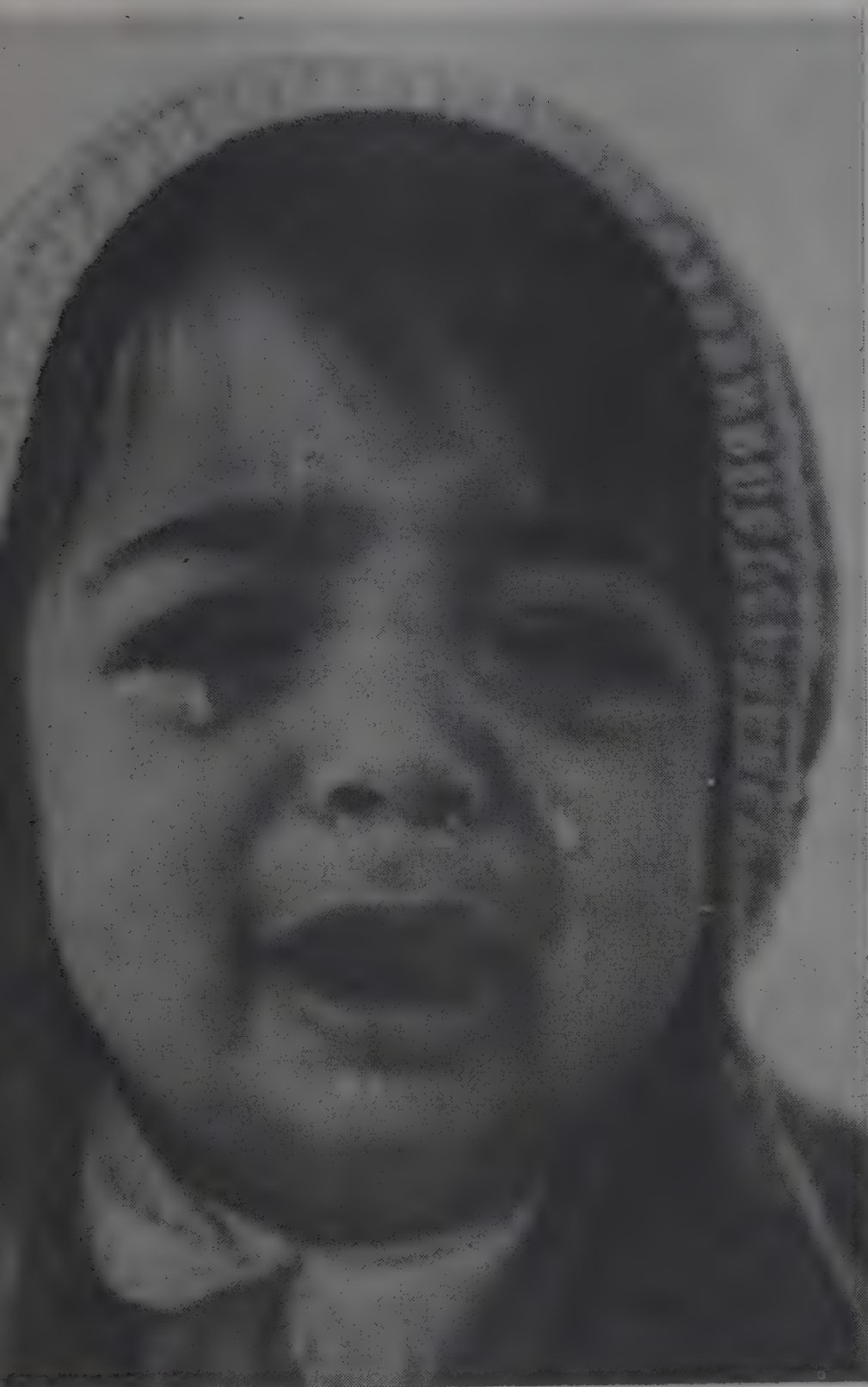
baby and then pulled into their parking space. Baby started to CRY! Well, that night they drove for an hour-and-a half before Ronny fell asleep. The following nights it varied anywhere between one and two hours!

This whole tale may sound decidedly exaggerated, but that is what Ronny's parents did every night—a substitute for cradle-rocking, perhaps.

He Forgot About Crying

Ronny's parents were successful in that: (1) the baby stopped crying after he was in the car and (2) after six weeks of nightly driving, the baby had outgrown his spells. He forgot about crying, though he still cried when he was hungry or when he was bothered by something else. He fell asleep after his last feed and slept peacefully right through the night. Was Ronny "spoiled" by this method?

We use gentler methods today for calming crying babies than former generations used. We don't believe that a baby should "cry



it out." We know that crying is not always due to the physical causes of hunger or discomfort. We are aware that some babies are not contented for some emotional reasons and they tell you about their worries and aches by crying—the only language they know.

When we know that baby will outgrow such habits as he gets older, we are more understanding and more patient with the little noise-producer.

Does a baby ever cry because he is spoiled? Dr. Benjamin Spock, from his long experience, does not think so, not in the first few months, anyway. And even after that, he

says, spoiling results only from a chronic situation.

First, of course you have to make sure that your baby is not crying for a physical reason. Give him a bottle if he is breastfed and is not getting the necessary quantity of breast milk. Doctors of the famous Mayo Clinic have stated that *hunger* was the most frequent cause of crying in their hospital. In addition to the milk, some solid foods, such as cereal or fruit, often help to overcome the feeling of hunger. See that baby's needs are taken care of readily so that crying spells are few and short.

Getting to the Source

It is common practice to "burp" a baby in the middle of feeding and at the end of it. Babies swallow air with their milk, and this may well be the cause of discomfort and crying.

Another reason for crying, they found out in the Mayo Clinic, was wet or dirty napkins. Change them before each feeding. Make use of a skin protection lotion, cream or powder to help remove any cause of irritation. An open safety pin, of course, would be a well-pointed cause for crying! However, such an accident happens much less often than most mothers tend to fear.

Years ago, teething was held responsible for crying spells, for colds, for fever, diarrhoea and what-have-you. The average baby

In the light of modern psychological knowledge, it is almost incredible that many children should still be punished because they cry. Crying will disappear with growing maturity, and it should certainly never incur punishment.

has six teeth at the end of the first year of his life. The first tooth usually appears after seven months, but the baby has been drooling, biting and having periods of fretfulness a long time before it arrives.

While it is true that a baby will often cry when his teeth are about to erupt, it is too easy to hold teething responsibility for all crying. In many cases there is no connection. Indigestion and colic are far more common causes.

There is an old prejudice which maintains that crying is essential for developing lungs. This idea probably is connected with the fact that babies are often made to cry immediately after birth in order to expand the lungs. But thereafter a crying baby means an uncomfortable, unhappy baby. Crying is not at all necessary to the development of lungs and bronchi.

Normal Stages of Crying

For many years Dr. Arnold Gesell, child psychologist at Yale University, has studied the crying stages of babies. After many observations he arrived at certain conclusions on the normal stages and crying of an average baby during his first few years. (Don't forget that your own child is not an "average child," but an individual child, while those stages are the average of thousands of observations. So if your baby doesn't fit in exactly with the rules, it does not mean at all that there is something wrong with him!)

During the first four weeks after birth the hunger cry is almost universal, Dr. Gesell says.

At four weeks the baby may fuss for half-an-hour a day, and may cry for one or two hours a day. At *four to twelve weeks* there is already different crying for different causes. There is crying before sleep as well as a hunger cry.

Between *eight and sixteen weeks* there is much crying and fussing, but less than formerly. The baby cries perhaps one hour a day, and at almost any provocation.

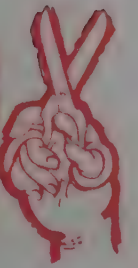
At *sixteen weeks* there is clearly less crying and for shorter periods. This changes again at *twenty weeks*, when crying may be evoked by any irritation, such as the mere appearance or disappearance of an object. At *twenty-eight weeks* there is less crying. Some babies at that stage prefer sitting up and they may start crying if they don't get their wish. By *thirty-two weeks* there is a close interplay of crying and laughter.

From *nine to twelve months* there is less crying, and crying is more connected with specific irritations or frustrations. The baby who is quick in learning may cry for attention.

At *fifteen months* the baby may fuss or use his voice when he is disturbed, instead of crying. The eighteen-month old baby may well develop a tantrum, with violent crying, if things go wrong. By twenty-one months, crying may be very violent—it has changed to "bawling." At the age of two years, the child is sensitive, dependent and tearful.

In the light of modern psychological knowledge it is almost incredible, Dr. Gesell says, that many children should still be punished *because* they cry. Crying will disappear with growing maturity, and it should certainly never incur punishment.

A mother soon comes to know some of the ways to soothe her crying child. Dr. Spock feels that a miserable baby should be comforted, if possible. Rocking or holding a baby in the early months will not spoil him. Making a baby happy, even when it means inconvenience to the parent, will always result in a happier parent as well. ***



Rarest among antelopes, the giant sable weighs about 500 pounds and stands up to fifty-two inches at the shoulder. Its home is in the Luando Reserve of central Angola, 3,700 square miles of Savanna and woodland and flood plain grassland.

To produce a diamond out of pure carbon, a million pounds of pressure per square inch and temperatures above 2,500°F. are required, conditions that exist in nature only at depths of at least 150 miles.

From Himalayan headwaters to the Bay of Bengal, the Ganges River runs 1,560 miles. The plain between the mountains and the delta is so flat that the river drops only 700 feet in 1,000 miles.

There is only one certified shepherd in Quebec. He is Gonzague de Mauraige and he has tended sheep in that province for forty years. This professional shepherd was born in southern France, where he studied his trade at the Rambouillet sheep-tending school, obtaining a diploma. His profession is more and more important as sheep-raising expands.

Rose breeders have managed to grow a thornless rose, but the goal of a true blue rose still eludes them. Closest so far are hazy lavender and lavender-blue hybrids.

Coal is the most abundant fuel resource in the United States, with recoverable reserves estimated to comprise several hundred years' supply at current rates of use.

If scientists could understand hibernation, that mysterious state like sleep that slows down the lives of some animals, they might be able to solve some of the problems connected with sending astronauts on year-long journeys through the solar system. Space scientists and biologists are now studying such animals as the jumping mouse, who eats itself into a plump ball, builds a nest underground, and with the first hard frost goes to bed. It sleeps soundly until the ground is warmed by spring, and then it wakes up. No problem at all. Bears gorge themselves on food until they have thick layers of fat to nourish them during their winter sleep. In the middle of the winter the female gives birth to her young, usually two very small cubs, who crawl around their mother's warm body until they find her breasts, and then nurse and sleep until spring.

For hundreds of years people have enjoyed garlic as a seasoning. Gardeners have known for a long time that it is also good to plant around rose bushes as a deterrent to aphids. Now it has been shown that mosquitoes don't like garlic either, and that chemicals in garlic can kill mosquito larvae, as well as various other plant and household pests. This finding points toward wider use of chemicals derived from garlic as a pesticide not harmful to humans.

Less than one per cent of Nepal can be farmed. The average farmer may own less than one acre, and his land may be split up into thirty tiny fields, sometimes as far as two days' walk from his village. Rice is grown 7,500 and 9,000 feet above sea level, higher than anywhere else in the world.

Leap year was invented by Julius Caesar about 45 B.C. in an attempt to straighten out the calendar and keep it in line with the seasons. Caesar divided the year into twelve months totalling 365 days. However, the earth takes about one-fourth of a day longer to orbit the sun. Caesar found a place for the accumulating extra time by adding one day to every fourth year, which in those days ended with February.

Attitude, Behaviour Health and Disease

by MERVYN G. HARDINGE, M.D., DR. P.H., Ph.D.

Throughout history, man has viewed illness and disease as a punishment for misbehaviour, a just return for misdeeds. Even today this concept dominates the thinking of people of many countries. Others believe that man is a helpless plaything of circumstances and has little, if any, control over his destiny. He must, therefore, accept whatever illness fate sends him. Thus, one who dies from a kidney infection is simply the unfortunate victim of an unknown, cruel fate.

With the discovery of germs and their disease-producing capability, a new light was shed on the cause of many and various kinds of diseases. Then, as the science of biology grew, it was seen that our planet and all that lives upon it is governed by natural law, engrained on every fibre and

cell. So man, both within himself and in the world about him, is amenable to law for his survival and well-being. How he interprets these forces and responds to them makes him responsible, at least in part, for the enjoyment of health on the one hand or the suffering of disease and an untimely death on the other.

Three Examples

In other words, man may be the agent of his own state of health, determined largely by what he does or does not do rather than by what some outside god or spirit or germ does to him. We now know that while one may become an innocent victim of chance, frequently illness and disease result from one's own choices and actions.

We could illustrate this profusely, but let's think of just three everyday examples. The businessman you have known for twenty-five years, who is scheduled for lung surgery, has been smoking cigarettes since before you knew him. Would you say the cigarettes are responsible for his life-threatening disease? Or is his personal choice to smoke them year after year responsible?

Or take the unfortunate cashier at your bank who collapsed with a coronary attack. What contributed to the deposits of cholesterol and other fatty materials that eventually clogged his coronary arteries? Is not the cause largely a way of life—diet, lack of exercise, and other self-chosen factors?

Automobile accidents are the leading cause of death below the age of thirty. We commonly think of accidents as

unexpected, uncontrolled, and unintentioned. But scientific studies have shown that the driver's attitude and behaviour largely determine his own and others' safety.

Disease, then in its broadest sense, frequently results from a failure to understand and heed the laws that govern the internal and external factors of health. Sometimes it's not a matter of understanding, but a failure to act. Pressing interests, needs, concerns, and desires brush aside an immediate response, and the life pattern continues as before. To escape unnecessary disease, one must "see it like it is" and respond appropriately.

We are constantly surrounded by disease-producing agents, activities, or events. These may in themselves

be harmless, but the way we relate to them may cause disease. Take, for example, alcohol, drugs, or the already-mentioned cigarettes and automobiles. Some are dangerous if used; others, only when misused.

Social Influences

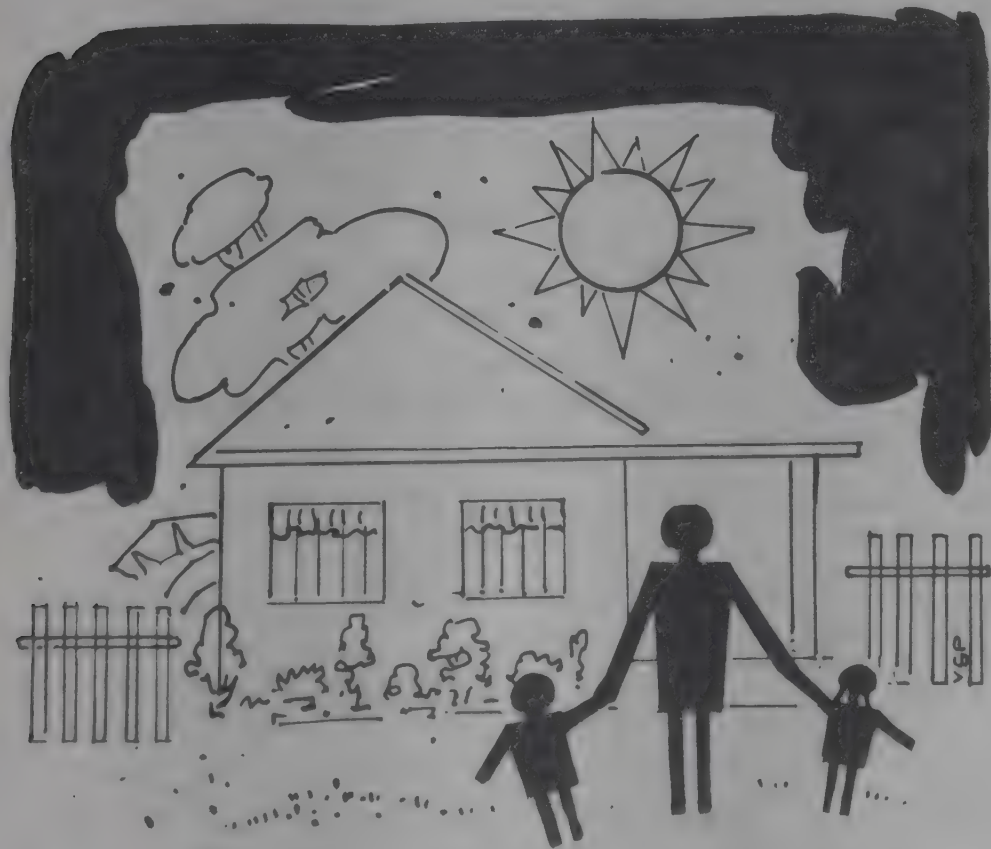
Unfortunately, our perception, interpretation, and response are influenced not only by the right cultural influences of our society, but also by wrong ones. We are subjected to pressures of the group in which we find ourselves, as well as by our own needs and desires. We too often permit our decisions to be made for us.

Cultural values are of great importance. How we respond

to them largely determines our state of health or disease. We may consider man as the chance product of long, evolutionary ages, or we may accept him as the creation of an all-wise, all-loving, all-mighty Creator who formed him and placed him under laws that would maintain him physically, mentally, and spiritually. Regardless of how we look at it, a failure to observe these laws must inevitably result in disorganization, illness, and death.

The maintenance of health is motivated by more than reason alone. Understanding "facts" is seldom sufficient to resist the forces of society, group pressures, and inner urges. It takes more. Prior to World War II the British sent a team of investigators to evaluate the keep-fit programmes that were sweeping many of the European nations. The youth of these nations were being marshalled into rigorous health development programmes. The British looked and listened. They saw here an incentive beyond their immediate grasp. Their report back home made it clear that such "burning zeal for health and physical achievement cannot be attained but in some cause greater than self." And so it is: zeal must override self-complacency and courage, self-indulgence.

May we have *both* the courage and the zeal! ***



Our environment has much to do with our health. Bright, clean, and calm surroundings contribute a great deal to the maintenance of optimum health.

BREAST FEEDING

THE SUPREME ACT OF MOTHERHOOD

by NORMA O'HARA

Any art student will tell you that true design has two criteria. Not only must an article (be it china or chairs) have beauty in appearance but it must also fulfil its function. When woman was made she was perfectly designed to appear attractive and beautiful as a wife and at the same time be ready to perform her role as a mother.

For a variety of reasons, some of which are unfortunately rooted in selfishness, the mother of today is depending more and more on substitute formulas for human milk, and babies "hit the bottle" almost from the moment they learn to suck. Breast-feeding seems to many to be an old-fashioned art that has no place in this enlightened age. Despite the definite advantages of breast-feeding for both baby and mother, more and more of modern mothers turn to bottle feeding. Now, more than ever, we need to remember the old French proverb, "The most loving act a mother can do is to nurse her baby. Nothing can ever replace the milk and the heart of a mother."

How It Works

At this point it might be as well to review a little local geography. A girl may have studied bi-

ology until she is able to recite the details of the rudimentary alimentary canal of endoparasites, but such knowledge is of little value to her now. So let us embark on a little journey of self-discovery.

The breasts are composed of glands and vessels embedded in fatty tissue. The nipple itself is surrounded by a circle of pink called the areola which becomes brownish in colour when pregnancy is established. On the areola are various small "pimples" which are really sebaceous glands, secreting an oily substance and thus acting as a protection to the skin of the nipple during nursing. The nipple is perforated in fifteen to twenty places by the openings of milk-bearing ducts. When milk supply is good and baby is busily dining at one breast the milk may be seen coming out of the different pores in the unused nipple in little fountain-like jets. A clean napkin, or a small towel needs to be on hand to protect clothing in such a case.

To explain a complicated arrangement as simply as possible, the milk is at first gathered in very tiny vessels in the depths of the breast. Several of these unite to form little bundles which in turn unite to form bigger vessels called "lobules." The lobules eventually converge together into milk reservoirs ("ampullæ") which lie directly under the



areola and which connect with the nipple by the way of tiny tubes or ducts. Now we may understand why it is so important that we make sure that baby is completely "latched on." Sucking the nipple alone will get him nowhere and will make him jerk back his head in frustration when he discovers that all his hard work is producing no results. If the areola is inside the baby's mouth the sucking movement presses and squeezes the milk reservoirs and the flow is assured.

Mother's Milk—the Perfect Food

Not only does the breast contain all the necessary equipment for making milk but it is also well supplied with nerves, arteries, and veins. As well, it has numerous lymphatic glands which connect with glands in the armpit. This latter fact explains why a certain amount of ache or pull is felt from the breasts under the arms when the milk is coming in after childbirth.

We have just looked at nature's "milk bottles." Now let's look at nature's milk. That breast milk is a superior infant food is indisputable. Some mothers may proudly say that their baby is on the best formula because its ingredients are the nearest to mother's milk. But although the formula manufacturer may be able to claim that his product is "most like" or "nearer to" he can never claim that it is "better than" or even "as good as" mother's milk. Human milk was made to fit in with baby's immature digestive system. It is easily digestible. A mother sees her baby grow almost daily before her eyes in those early months. Baby needs energy for this tremendous rate of growth of brain and body—energy that should not be stolen by his digestive system.

Despite an advance in scientific knowledge, all the many components of breast milk are still not known. Some formula might miss out a vital vitamin, and thus human milk is of special nutritional value to babies. If her milk supply is good a mother may breast-feed her baby for five months without

introducing solids, and her baby will show good progress. Yet as early as eight weeks many mothers are eager to stuff as many solid foods as they can down baby's throat. Strangely enough it is not so much the fact that we want the best for baby, but rather that Saro, down the road, has her baby on solids and we don't want to be left behind. Every mother should determine to let her baby progress at his own rate and should not let the spirit of rivalry cheat her of enjoying the best for baby and herself.

Advantages

The advantages of breast-feeding are numerous. Medical researchers claim that breast-feeding is more healthful than bottle feeding. For example, Dr. Paul Gyorgy, noted professor emeritus of paediatrics at the University of Pennsylvania School of Medicine, believes that breast-fed babies have a higher resistance to intestinal disorders and to respiratory as well as staphylococcus diseases. Other medical authorities state that allergies, such as eczema, are not caused by human milk, whereas this may occur with breast-milk substitutes. Formulas are often made up by mothers some time before they are actually given to the baby. Extra care in sterilization must be taken or germs will have a chance to multiply. Human milk does not see the light of day. It goes straight from the mother to the baby and therefore is completely fresh and unspoiled. Furthermore, doctors will plainly tell you that many mothers who bottle-feed their babies are constantly coming to them with the problem of baby's constipation. A breast-fed baby is never constipated. Conversely breast-fed babies have fewer cases of diarrhoea.

Breast-feeding is convenient timewise. To have your own built-in, pure milk supply constantly at the right temperature is a boon and allows the mother to travel anywhere without the worry of sterilizing, warming, cooling and cleaning up. It also works out quite a deal cheaper—no mean disadvantage considering today's high cost of living.

Not only baby but also mother benefits from breast-feeding. Without becoming too technical, there are certain hormones present in the body during nursing that help the mother to get back into shape internally after childbirth. Those "pains in the stomach" which may be felt at the beginning of nursing are really contractions causing the uterus (womb) to contract to prenatal size. Furthermore, some studies indicate that the mother who nurses

her infant is less likely to develop breast cancer later in life.

Perhaps more important than all the technical and scientific advantages of breast-feeding is the psychological advantage of the mother-child relationship. Dr. Grantley Dick-Reed states: "The newborn baby has three demands. They are warmth in the arms of its mother, food from her breast, and security in the knowledge of her presence. Breast-feeding satisfies all three."

Not only the baby's needs but the mother's needs are met, too. In the closeness and intimacy of feeding her child she herself feels wanted and needed. As she realizes that she has the ability to satisfy her baby's needs in a more complete way than anyone else in this world, her confidence in her own ability as a mother increases. She is not just a lady with a baby, but a mother. Physically and emotionally, nursing makes her feel as if she is overflowing with love—a tender, kind emotion that imparts a glow and that even affects her relationships with others, as well as softening her own nature. Nursing mothers can testify that breast-feeding makes them feel fulfilled and complete.

This does not necessarily mean that the nursing mother is always a good mother. Circumstances may force some mothers to bottle-feed their babies. But there is a great difference between throwing baby and bottle into the cot and holding baby close, snug and warm to give him his bottle.

Disadvantages

To be fair we must consider the disadvantages of breast-feeding and weigh them against the definite advantages. Let it be said, however, that the woman who really wills to feed her baby and is convinced of its merits is readily able to overcome any disadvantages or problems.

In the early weeks there may be some discomfort caused by sore nipples. A mother who almost goes through the roof every time baby begins to suck and then endures a painful nursing period may often wonder what joy others can possibly experience in this apparently unending discomfort. Many stop nursing when they encounter this difficulty, and vow and declare, "Never again!" With proper care this problem can be overcome and the happy part subsequently enjoyed. Although not the most convenient method, exposing the nipples to the air

Nursing mothers can testify that breast-feeding makes them feel fulfilled and complete.

toughens up tender skin. A talk with your doctor is advisable. At her fingertips she has knowledge of methods, ointments and ideas that will alleviate the soreness. Of course, it is always advisable to follow the pre-natal nipple care advised by your doctor or hospital beforehand, but although helpful this will not always be a guarantee that you will not experience tender and painful nipples.

Sometimes infections or abscesses may occur. The first indications of these may be reddened area on the breast, a tender spot or a sore lump. Sometimes these may be accompanied by a fever, when aching limbs, hot and cold spells, raised temperature and generally "rotten" feeling remind one of the symptoms of an attack of flu. Before any infection can worsen and develop into what could be a painful abscess, a visit to your doctor is definitely good policy.

"Poor Baby, You're Starving Him!"

Some claim that a disadvantage of breast-feeding is that you cannot measure the amount of milk as you can in a bottle. This is true and consequently the nursing mother may wonder if her baby is getting enough. Her fears are not allayed when, at a mere whimper from baby, well meaning relatives and friends say, "You're starving him. Are you sure you've got enough milk?" There will come many such remarks that will make the nursing mother doubt her ability to feed her child and will make her think that she is a dried up fountain. The best thing for her to do is to turn a deaf ear and not let these remarks make her run for the bottle.

The mother may reassure herself by constantly and regularly having the baby weighed. His good steady progress in weight will rid her of her doubts. The best way of increasing your supply is simply to nurse baby more often, as there is a direct connection between the amount of suckling and the amount of milk the mother produces. It is encouraging to know that half an hour after each breast is emptied there is another ounce there for baby. Then again the doctor will tell the worried mother of many other methods that will help increase her supply.

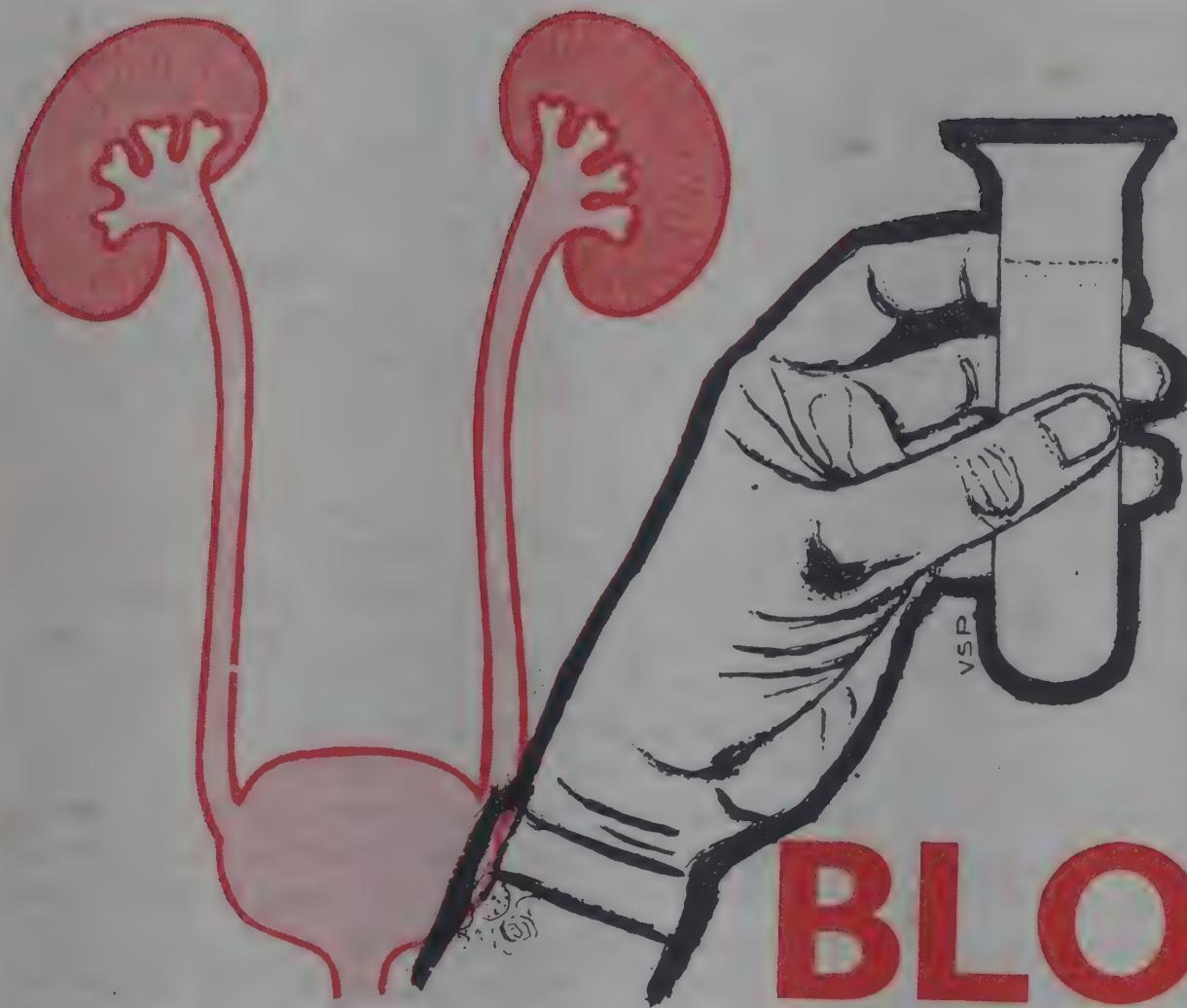
There are some mothers who are psychologically disenchanted with breast-feeding when they remember seeing pictures of women with misshapen and pendulous breasts. A nursing mother's figure may not suffer if she takes care to wear proper maternity and nursing brassieres that have wide straps and give firm support, during and after pregnancy. Exercises help in keeping the muscles firm and the figure trim.

Breast-feeding can cause some inconvenience in that there is a need for privacy. In some areas it may be quite a natural procedure for a mother to feed her baby in public. In other places breast-feeding in public is not so readily socially acceptable. However, wearing the right clothes, a mother may feed her baby so unobtrusively that those around her are completely unaware that baby is in the middle of his meal. Dresses or blouses that button or zip down the front or lap over at the side are a must. Brassieres that have cups which open may be used.

To a mother who has an abundant supply, leaking may be quite a problem in those early weeks. A new mother can easily become disgruntled if she feels that this must keep her at home. She must get out, away from the house, and enjoy meeting people. It is not a small embarrassment to be talking to a friend to find her, or worse still his, eyes wandering from your face, and to discover later two lovely wet patches on your dress like breast shields! Such a disaster can be avoided by using folded, clean, white handkerchiefs as padding. If this is not sufficient then any number of arrangements with clean tea towels, clean napkins, etc., fixed with safety pins can do the trick. There are certain materials, designs and colours that disguise wet patches more readily than others.

Many a mother gives up breast-feeding after two or three months. She says that breast-feeding is taking too much out of her and that baby's sucking is making her annoyed and nervous. This can happen, but instead of "packing it in," it is better to take stock of the whole situation. There is a certain amount of giving of oneself when breast-feeding. A tired, hungry, mentally weary mother, whose resources mentally and physically are at a low ebb, cannot give of herself successfully. The chances are that the mother is overtired or has been too enthusiastic about housework or extra curricular activities. She will need to give in to herself, try some early nights and purposely relax for a few days. Then she will feel calm, not keyed up, at nursing times and will find herself enjoying, not just enduring breast-feeding once more.

Finally when all is said and done, breast-feeding is simple—it is only doing what comes naturally. If you wish to feel that you have "come a long way"; if you wish to have at least "arrived," and would like to experience a blossoming into real motherhood, then breast-feeding is for you. We, the mothers who have nursed their babies, can testify to that and invite you to find joy in the same experience. ***



Even a drop of blood in the urine may be a danger signal.

by RICHARD L. POTTS, M.D.

BLOOD IN

WHY be concerned over a little blood in the urine? Because blood in the urine in any amount is a danger signal. It should mean cancer until the doctor has a chance to prove it otherwise.

Hæmaturia, another name for blood in the urine, is always serious. The urine may have a tell-tale colour so that there is no doubt as to what it is. It may appear cloudy and only slightly darkened, making the problem of self-detection more difficult. It may be clear at the beginning of the act of urinating and streaked with blood at the end. It may be clear and without any sign of blood to the naked eye but be swarming with microscopic red blood cells. Blood in the urine may escape the trained eye of a laboratory technician until he finds it after spinning it down in a centrifuge to concentrate the cells, and even then it may escape notice

and leave the final decision to a chemical test whereby a few red blood cells are able to make a solution or a strip of special paper change colour and thus prove its presence.

No physician likes to tell a patient he has cancer, yet all physicians are obligated to be on a constant lookout for disease and to contribute their findings in establishing a diagnosis. As with many other diseases, cancer often responds to treatment when the treatment is begun early. When you bring a symptom or a clue to the attention of your physician, he is able to pursue the problem and, chances are, save your life. Unfortunately, not all clues are as obvious as bright red blood in the urine.

Routine Examinations

Modern science has developed many ways to help you help yourself. It recommends routine ex-

aminations and Pap smears for women to determine whether they have cancer of the womb. It recommends routine chest X ray examinations to detect tuberculosis and lung cancer. It recommends that all physicians routinely screen their patients for diabetes and syphilis. It provides physicians with modern office aids for diagnosing many severe diseases. Among these aids are specially prepared paper strips for dipping into a tube of urine to determine whether there is blood, bile, sugar, or protein in it.

No one can force you to consult a physician. Many people wait until they have clear and definite signs of disease before they decide to see their doctor. In the case of hæmaturia, or blood in the urine, some people are fortunate enough to see a tiny blood clot or streaks of red. Unfortunately, we are not equipped with microscopic eyes that can see only a few red blood

cells. For that we need to spin the urine down in a machine and examine it under a microscope. Even then our eyes may deceive us and miss the telltale cells. Fortunately, the chemical tests are accurate, and doctors are able to screen many people every day.

Regardless of how blood in the urine is detected, the physician must find its source and see to it that the patient receives the best treatment available. This situation brings up a delicate question. Should a nonspecialist make the diagnosis and treat the disease? Or should he refer his patient to a specialist in urology?

The nonspecialist may procrastinate because of lack of diagnostic and therapeutic equipment. Hæmaturia is not a disease but a sign, a clue, to a disease. Any time lost could take time from the patient's life. Diagnosed early, the disease often can be treated with good results.

A Clue to Disease

There are causes other than cancer for blood in the urine. In women one of the most frequent causes is menstrual flow. In men or women bleeding may come from a tiny kidney stone lodged somewhere in the urinary tract. Oc-

liver, and long bones of the body. It kills. The most common symptom in renal (kidney) cancer is bloody urine—blood from an eroded blood vessel in a tumorous kidney.

Fever is another frequent symptom in this highly malignant disease. Sometimes an unexplained fever, hæmaturia, and general alterations in ordinary blood counts are the only clues. Sometimes a mass can be felt by the physician. Sometimes a Papanicolaou smear of the urine sediment helps confirm the diagnosis. Sometimes radioactive isotopes, X rays, kidney function tests, and other tests are necessary to make the diagnosis.

Once the diagnosis is made, the patient must be evaluated for treatment. By choice, the treatment is surgical removal of the kidney. The results depend on the stage of the disease and whether it has sent off satellite tumours to distant organs. Blood in the urine often is the only sign that can make the physician suspect the presence of the dreaded disease.

Bladder Cancer

The most common and consistent symptom in cancer of the bladder is blood in the urine. About seventy-five per cent of such tumours occur in men over age fifty. Metastasis may occur in nearby lymph nodes, bones, lungs, and liver. Other symptoms indicative of bladder trouble include frequency, urgency, and pain of urination. Complications may result from a tumour blocking one of the openings from the ureters or the urethra. As in kidney cancer, a Pap smear of the urine is often helpful.

The bladder is more accessible for direct examination than the kidneys are. A special instrument called a cystoscope or panendo-

Most physicians are honest men who know their limitations and immediately refer a patient to a specialist when the need arises. They are aware of the problem of accurately diagnosing the patient with urinary-tract disease and giving him the best possible treatment.

In the case of hæmaturia, a heart specialist knows that the final word should rest with the urologist, because it is a urologic problem. The orthopædist knows that he is ill prepared to evaluate a person with hæmaturia. A general practitioner knows that he is capable of making a good diagnosis, but because of a few years' difference in schooling he must have his diagnosis confirmed by a colleague who limits his practice to the genito-urinary tract. Although the urologist well knows the proper treatment for his cases, he realizes that the problem is not so much what to do as doing it in time.

casionally it comes from a benign tumour in the bladder, but more often it comes from a malignant tumour in the bladder. Sometimes the bleeding is caused by an infection such as tuberculosis or gonorrhœa. Sometimes it comes from a disease called glomerulonephritis, a rheumatic, fever-like disease of the kidneys. Whatever the cause, hæmaturia is a serious finding—serious because if it is diagnosed early it may be treated effectively.

In young adults blood in the urine most often comes from tuberculosis. In older people it most often comes from cancer.

Cancer of the Kidneys

Adenocarcinoma (hypernephroma) is the most common malignant tumour of the kidneys. It occurs more often in men than in women. It sends off metastasis, or satellite tumours, to the lungs,

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scope enables the surgeon to see directly into the bladder through the urethra and to snip off for examination a piece of the tissue suspected to be cancerous.

The same instrument may enable the surgeon to remove the tumour without having to put the patient under a general anæsthetic for surgery. The specialists know which method to use to get the best results, but as in renal (kidney) cancer, the earlier they are able to make the diagnosis the better the results are likely to be.

Urinary Stones

Stones may form as a result of gout, urinary-tract infection, or unknown causes. Symptoms vary from person to person, according to the location and extent of infected tissue. Kidney stones may or may not show symptoms. When a stone is lodged in one of the major outlets of the kidney leading to the ureter and causes an obstruction, the patient may notice dull pain in his side. Sometimes the pain reaches waves of sharpness. Blood in the urine and symptoms of accompanying infection may appear. At times nausea and vomiting are part of the picture.

Treatment depends on the cause of the underlying disease. Whether surgery becomes necessary depends on the size and location of the stone. Sometimes stones break up and pass out through the urinary tract. Sometimes nothing more than an antispasmodic (muscle relaxing) medication is necessary to help their passage. Sometimes surgery is the only way to remove the stone and relieve the symptoms accompanying it.

Ureteral stones, or stones in the canal that connects the kidney to the bladder, block the passage so that urine is unable to pass in its natural course. The pain caused by such a stone usually is intense.

Treatment is dependent on the person's response to medical management. Just as kidney stones may do, ureteral stones may pass down and out with antispasmodics, or they may require surgery. Hæmaturia usually is noted in ureteral stone disease.

Bladder stones (vesical stones) often cause bladder symptoms that include pain and frequency and urgency in urination. If X rays fail to show stones, direct examination with a cystoscope usually confirms the diagnosis. Chances are a surgeon will attempt to extract a stone small enough to pass through the instrument. If his attempt fails, he ordinarily resorts to abdominal surgery and opens the bladder.

Other Causes of Hæmaturia

Tuberculosis of the kidneys results from a lung infection in which the tubercle bacilli have passed into the general circulation and have found their way to the kidneys, where they multiply and destroy kidney tissue as they destroyed lung tissue. Often blood is found in the urine. When the patient is a young adult suspected of being tubercular, the physician should find out whether kidney tuberculosis is present. Treatment is essentially medical—aimed at elimination of the microbes. Occasionally surgery along with the medical programme becomes necessary.

On occasion acute gonorrhœa may cause bleeding, with resulting hæmaturia. As with other bacterial infections, active gonorrhœa responds to adequate antibiotic therapy.

Sometimes hæmaturia comes as a result of a broken varicose vein inside the bladder. When the surgeon confirms the diagnosis by cystoscopic examination he probably stops the bleeding during the

procedure, coagulating the broken vessel with either an electric needle or liquid nitrogen (cryotherapy).

Detecting Blood in the Urine

Blood in the urine may be detected by several different laboratory methods. In a doctor's office without the facilities of a clinical laboratory, there are aids in which specially prepared strips of paper or tablets are readily available to help the busy practitioner. A drop of urine changes the paper or tablet colour, indicating that blood is present. In spite of the availability of these aids, most physicians recommend a full urinalysis, in which the technician checks for many other factors besides blood.

Even with all the available methods of detecting blood in the urine, people still are prone to ignore routine screening procedures. I strongly urge you to ask your physician to check your urine for blood the next time you visit him. A thirty-second test performed by the nurse might save your life.

What about cases in which a person thinks he is voiding blood but is not? It is possible that urine can become tinged with red after the person has eaten beets or has taken a particular laxative. Before running off to your physician for an emergency consultation, recall whether such a material coloured the urine.

Under no conditions should bloody urine be ignored. Remember, bloody urine, visible or invisible to the naked eye, is not a poison being eliminated by your body. It is not the result of high blood pressure. It is not due to too much blood circulating in your body. It is a danger signal, a signal not to be ignored. ***



An apple a day keeps the doctor away.

Medical Proverbs

The Common Sense of Centuries

by Dr. R. BOUISSOU

SUMMARIZING popular experience or giving practical advice, concise and easy to remember, the proverb is a kind of decanted wisdom of the ages, the common sense or common fallacy of past centuries reduced to a formula. Proverbs reflect social conditions. They cover everything and anything that has to do with man in his community: medicine has obviously not been neglected; indeed, there is a body of proverbs that echo many phases of medical history and touch on almost every aspect of medical practice before the modern scientific period. Short and rhythmic, blunt or piquant in turn, proverbs are often memorable through the use of rhyme, and, though the lore they express may be ancient and out of date, a kind of fusty folksiness that the modern hygienist cannot accept, many proverbs have a contem-

porary flavour and are still applicable today.

The history of medicine of course has no frontier: it is international and so, generally speaking, are the proverbs. They belong to many countries and their origin is thus often difficult to ascertain. Some proverbs, however, do have such distinctive character and bear such clear marks of a given source that it is easy to determine their home country.

The aim of this article is to give a brief outline of medical "proverbology" and to show something of what proverbs have to say about forms of treatment, remedies and hygiene, diagnosis and prognosis, surgery and the teaching of medicine. Whenever possible, the origin of the proverbs has been given. There were more than two thousand to choose from, and the present selection is based

mainly on general applicability and present topicality.

Harbingers of Future

The study of medical proverbs is fascinating because of their variety and originality because of the learning they evince, and because of the questions they raise. Sometimes they have a scientific air and are the harbingers of future discoveries: medical facts were guessed at rather than demonstrated.

More than 2,000 years ago, the Chinese proclaimed "If you want your child to have a quiet life, he should always be a little hungry and have a slight cold". Was this the expression of an "immunological" notion as in a number of Spanish proverbs? "A small amount of poison neither harms nor kills", "Not all diseases are bad



If you can't be a king, be a doctor.

for the health", and "What gave you the disease gives you the cure", which reminds us of "The hair of the tail of the dog that bit you ..."

A 16th century proverb may also be quoted here: "Wise care begets fear". All these "immunological" proverbs are of historical and scientific interest today: their distant and unknown authors were precursors of the future.

Folk medicine thrives on proverbs and sayings of all sorts. The proverbs contain a lot of common sense as well as practical suggestions for the treatment of illness, and are often valuable, though scientific truth may not always be respected. Cures may derive from empirical practices, superstition or intuition, but they belong to the general fund of knowledge and belief which has come down the ages. "Everyone tries to be a doctor, there are more doctors than patients." Both the sick and the healthy practise medicine (illegally perhaps), so it is not surprising that there is a rich collection of proverbs in all parts of

the world. Other proverbs derive more from the old professional medicine.

Setting the Limits

The Arab proverb "There is no cure for death" sets the limits of the art of medicine; a somewhat brighter view is taken by the inventor of "While there is life there is hope": the practitioner must never give up, even in serious cases, for, according to the English saying, "Desperate diseases have desperate cures", which is the equivalent of the French "Aux grands maux, les grands remèdes".

The origins of a disease or illness must be known for correct treatment to be administered: "Chi non conosce l'origine del male, raramente la sua medicina vale" (if you do not know the origin of the illness, your medicine is rarely any good). This Italian proverb raises the question of the doctor's competence. According to the English, "The best physicians are Dr. Diet, Dr. Quiet and Dr.

Merryman". There's plain speaking for you, if you like.

Scepticism has always been the rule in medicine. The French have no hesitation in saying—perhaps in a sarcastic tone of voice—"Hurry up and take some while it still works". One is curiously reminded of some modern situations, of antibiotics, for example, that become ineffective against certain strains of disease organisms, or DDT, against which some insects have become resistant.

The apothecaries do not escape comment or criticism. A whole chapter could be devoted to them. For one thing, pills and potions were mostly hard to take: "If the pills were pleasant they would not want gilding" as the English say. The patient's prayer "Heaven save us from an apothecary's mistake" deserved to be heard, for while in former times the apothecary was entitled to replace certain drugs by others (we might speak of ersatz today), he was not supposed to blunder in doing so.

Pills and Potions

While the English "doctor the bill" and say that "Sickness soaks the purse", the Russians advise that "A visit to the chemist means being bold with your gold" and the Germans comment "Though it may not cure the patient, it does the chemist a lot of good". The common denominator recognized by all is that the chemist is always rich—"Old doctor, young surgeon, rich apothecary".

Medical proverbs, however, are not just a matter of swallowing potions and applying remedies. There is a whole mass of advice on hygiene and prevention. The French proverb "Lever a cinq,

diner a neuf, souper a cinq, coucher a neuf fera vivre nonante-neuf" has an English equivalent in "Early to bed, early to rise, makes a man healthy, wealthy and wise" and both are easily remembered. The Italians say "Keep a cool head, a light stomach, warm feet and forget about the doctor" while the Russians advocate the same, "Keep your head cool, your stomach empty and your feet warm" adding the philosophical rider "A good life makes a good death".

The importance of where you live is evoked by the following two Spanish sayings: "A draught from a window is as bad as a bolt from a cross-bow" and "Where the sun enters, the doctor does not".

Eat and Die

Many proverbs concern food, for example "A hundred will eat themselves to death before one man dies of hunger", "Gluttony

kills more than the sword", "Whatever was the father of a disease, and ill diet was the mother" and "More have been killed by suppers than Galen ever cured". Every sort of food, whether good or harmful, is mentioned—together with its virtues or vices. A Spanish proverb highlights the importance of clean drinking water: "Running water doesn't kill—stagnant water does", which contains a kernel of truth, but should not be taken too literally, though there is certainly less chance of running water being polluted.

"Prevention is better than cure" is a very old saying and expresses an idea that public health departments and WHO never tire of preaching. A humorous "epidemiological" proverb comes from the Spanish: "It is wise to flee the plague by three L's" a proverb which refers to the words "luego"—at once, "legos"—far away, "largo tiempo"—for a long time. A good idea if it works, but fleeing the plague undoubtedly also con-

tributed to its spread. The saying probably dates from the 15th century when foul air was thought to be the cause of plague. The role of the flea was not suspected.

Illness on Horseback

"The doctor's art is to maintain health and cure disease." This saying from 12th-century Salerno still holds good today. Popular ideas on disease were given proverbial expression in many countries. One of the characteristics of diseases, noted by Russians and French alike, is the speed with which they attack: "Illness comes on horseback and leaves on foot." Sometimes of course it does not leave: "A pain in the side puts a cross on the hill", "A day of purge is a day for the graveyard"; these Italian and Spanish proverbs perhaps refer to the dangers of appendicitis and improper treatment, and can turn out to be true. Another prognosis, "A dry cough is the trumpeter of death", recalls the times when consumption was more conspicuous as a cause of death than it is today.

Diagnosis also can be expressed in a concise formula: "When the spleen gets big, the body gets thin", from the modern point of view one immediately thinks of an enlargement of the spleen caused by malaria. There are picturesque Chinese, Spanish and French proverbs relating to treatment of eye diseases: "If your eyes are sore and you touch them not, after ten days you will see a lot", "If you would heal your eye, your hands you must tie" and "You should never touch your eye but with your elbow".

The list of maxims, remedies and treatment methods for each disease is too long to be reproduced here, but the proverb "There are no illnesses, there are only ill peo-



Don't live in a place where there is neither temple,
school nor doctor."



The best physicians are Dr. Diet, Dr. Quiet, and Dr. Merryman.

ple" highlights the importance of a character who is essential to the plot, namely the patient. In medicine much depends on the personal relationship between physician and patient. This is reflected in many proverbs. Some recommend complete confidence: "If the sick man hides his ill, the physician will try in vain to cure him." French proverbs express the same idea as the Russian: "Hide nothing from thy confessor, thy doctor or thy lawyer" and "If you want to recover you must tell your doctor all your ills"; an English proverb points out that "A disease known is half cured".

A Garden of Weeds

Other proverbs stress practical aspects and call for efficient remedies: "Kind words are not bad but a cure is better" and "A man of words but not of deeds is like a garden full of weeds". Nevertheless, morale is important and many proverbs have a distinct psychotherapeutic flavour: "For the sick man, the doctor's smiling face means good health" and "The physician is the minstrel of body and soul".

The sick talk a lot about their doctor, sometimes favourably, more often not, and proverbs contain much criticism and ridicule. As doctors are persons in authority,

with power over life or death, they arouse contradictory attitudes on the part of their patients who fear them, respect them, trust them completely, but also realize that doctors are often helpless.

Three elements are constantly turning up in the patient's opinion of his doctor: age, experience and luck. He does not like a doctor to be young: "A young doctor hunchbacks the cemetery" say the French, and the English add: "A new physician must have a new churchyard". A surgeon, however, must be young, with a sure hand and cold-blooded determination: "Pitiful surgeon spoileth sore". Experience is important: "Experience without learning is better than learning without experience" is a witty formula, complemented by the Arab proverb, "The only real doctor is the one with experience". The rights of empiricists are thus fully acknowledged. The whole of a doctor's life is spent in learning: "When a doctor dies he comes to the end of his apprenticeship". But the patient is suspicious of titles: just as "Good wine needs no bush" so "It is not the gown that makes the doctor", which refers to the furred gown and hood that doctors used to wear as a distinctive sign of their profession. Patients are particularly wary of ignorance: "An ignorant doctor will disarm nature"

because often he will not let nature take its course; for the English, 'Nature is the best physician'.

Lucky or Learned?

But if experience is undoubtedly of value, luck can also be a trump card. "Meglio un medico fortunato che uno dotto"—"It's better to have a lucky doctor than a learned one", says the Italian proverb, and the English comment "Lucky men need no counsel".

Popular opinion, however, can at times be quite harsh. If, as Voltaire said, "A doctor is someone who pours drugs he barely knows into a body he knows even less", we could add that "The doctor is often more to be feared than the disease" and "The doctor cures the sickness but kills the patient". The following Spanish proverb questions the value of a three-cornered consultation: "One doctor cures, two discuss, three commit murder", which suggests the English "Doctors differ and patients die". "The learned assassins that parade as doctors . . ." is a frequent idea.

However, two Indian proverbs are reassuring to medical practitioners: "Don't live in a place where there is neither temple, school nor doctor" and "If you can't be king, be a doctor".

This rapid review is perhaps insufficient for a true appreciation of medical proverbs, but clearly they are of great historical, literary and scientific interest.

Summing up the medical knowledge of an epoch, these proverbs are neither simple figures of speech nor "sayings dragged out of the gutters of the market"—they are more than that. Many are the expressions of folk medicine that was not always ineffective, and their striking form is often not lacking in modern appeal. ***

—Courtesy of W. H. O.

Cleaning Rusty Tools

Put a pad of steel wool in a container. Pour a little light oil over it and keep in your workshop to clean rusty tools. It cleans them and at the same time leaves a protective film of oil.

Scorch Marks

To remove scorch marks, moisten a cloth with peroxide and lay it on the scorch mark. Press with a medium hot iron, and the mark will come off onto the cloth.

Car Wash

When you have finished washing your car, add vinegar to the rinsing water and it will make the car shine beautifully. Also the same applies to rinsing the hair after washing. If used in the final rinse, vinegar will make the hair silky and shine brightly, bringing out the highlights.

Smell of Paint

When painting a room, cut an onion in half and leave it in the room during the night. When you awaken the next day, all the painting odours will have vanished.

New Tea Towels

Soak new tea towels in cold water with half a packet of Epsom salts. This removes the dressing and makes them soft and absorbent in one wash.

Marks on Polished Table

Marks made on a table by heat can be easily removed by mixing equal quantities of linseed oil and methylated spirits and rubbing over the mark. It is gone in a flash.

To Line Curtains

Curtains will not only hang better, but they will wear longer if lined. The lining should be of lighter weight than the curtain material. Hem the lining all around. Place the curtain, wrong side up, on a table and lay the lining over it, right side up. Join at the top. Do not sew anywhere else. Hang the curtains for several weeks, and then lightly hand-stitch the lining to the curtains along the side hems, using a long stitch so that you catch the two pieces of material together at about every four inches.

Novel Fruit Bowls

Old gramophone records make attractive fruit bowls if placed on an upturned basin in a cool oven until soft enough to mould into shape.

Stewing Apples

When stewing apples, first bring sugar and water to the boil, then put in the sliced apples. This will keep them from stewing to a pulp.

Bread-hole Eggs

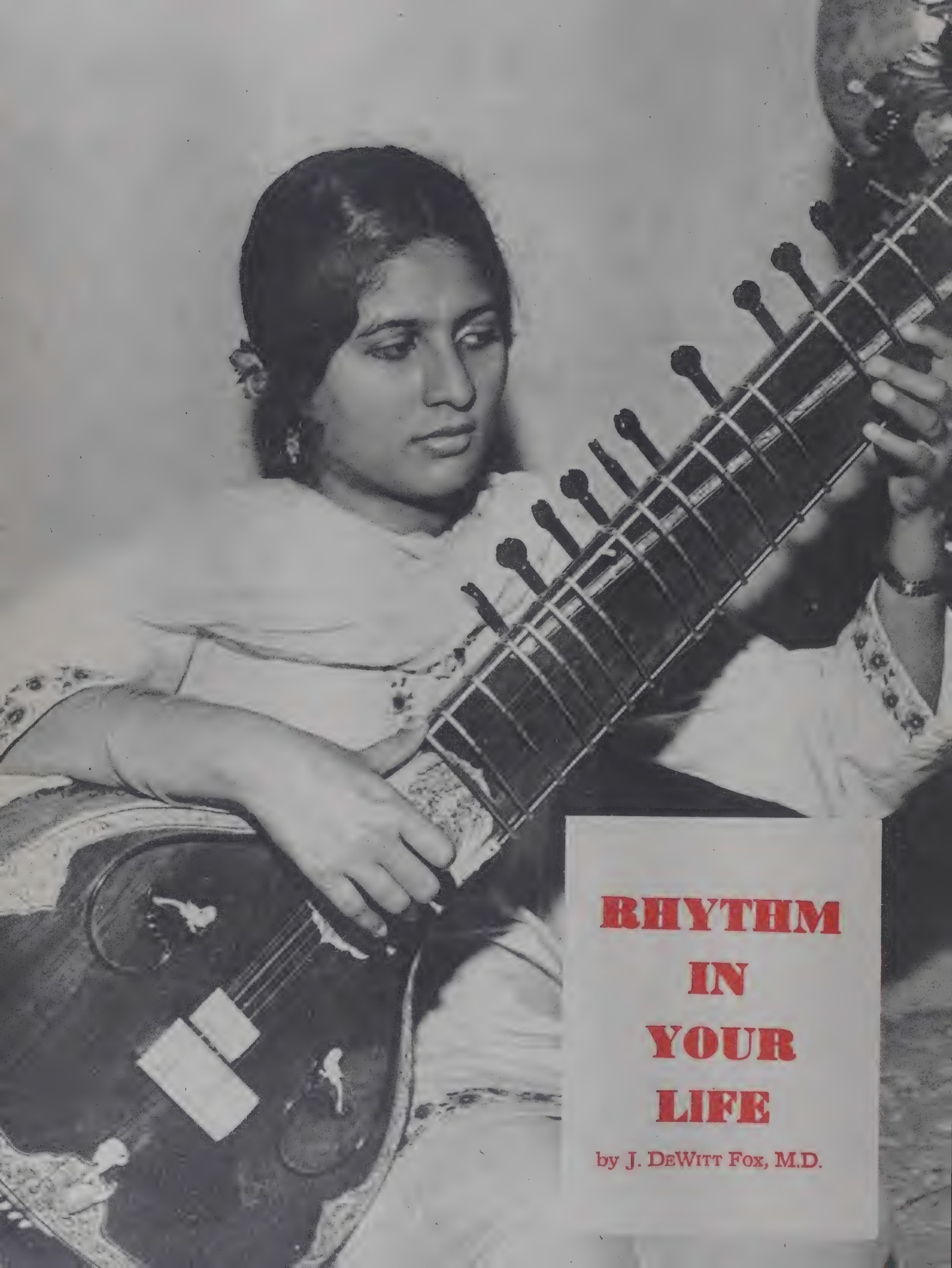
Bread-hole eggs are a favourite with children, and a child can often be induced to eat an egg this way when he or she would normally refuse. Use a large, round biscuit cutter to remove the centre from a slice of bread. Brown on one side in butter. Now slip a raw egg into the centre hole. Turn and brown the other side of bread and egg, adding more butter as needed. Brown the round centre piece also. Children love to call this part "the lid" which is placed on top of the cooked egg and bread just prior to being served. Satisfaction is guaranteed.

Tick of Clock

Many people dislike the noise of a clock ticking in the bedroom while they are trying to sleep. To minimize the noise, place the clock on a piece of foam sponge, and peaceful rest is assured.

Stapler a Useful Tool

Keep a small stapler in the kitchen and staple shut the tops of bags of potato chips, biscuits, etc., after they have been opened. You will find that the food will stay crisper in damp weather. Use the stapler to close the tops of plastic bags of food for the refrigerator and freezer, too.



**RHYTHM
IN
YOUR
LIFE**

by J. DEWITT FOX, M.D.

EVERYTHING in the moving universe is designed on the basis of rhythm—action followed by inaction, motion followed by quiet, day followed by night, activity balanced with sleep.

Nowhere is this rhythm seen more completely than in the human heart. Your heart under normal rest conditions beats seventy-two to eighty times per minute, depending on your size. It is designed to rest twice as much as it works. It rests two thirds of your lifetime. People who work their hearts hard and strain them with worry and stress find that they wear out much sooner than they should. People who put rhythm, rest, and relaxation into life find that their hearts last much longer than the usual seventy years. They may run until eighty, ninety, or more years.

By putting rhythm into your life you enjoy pep and bounce. Rhythm in music, in contrast to noise, means that there is regularity of beat. Rhythm in your life requires regular hours, specified times for doing things. Regular hours for sleep and rest are essential to long life. The man who burns the candle at both ends usually finds himself burned out in the middle, and his heart candle flickers out much too soon.

Balance work rhythmically with rest and relaxation. Balance driving thought and

concentration with quiet meditation and physical activity. If noise and turmoil fill your life, you owe yourself some quiet and calm moments to balance them. Noisy crowds and congestion call for quiet isolation and solitude to bring you mental equilibrium.

Change of Tempo

Just as a constant drum-beat is not as pleasant as a change in tempo, with fast and slow rhythm alternated to give pleasant musical listening, even so your life needs a change of tempo often.

There is no harm in hard, stressful work, but it is constant unrelenting stress that damages the human heart, according to Dr. George Griffith, emeritus professor of cardiology at the University of Southern California School of Medicine.

It is the man who continually works against stress and strain, with worry, fear, apprehension, and anxiety dogging him all day, day after day, who ends up with a heart attack long before his time. Executives are flaming out at the age fifty largely because they do not put rhythm into their daily lives, whereas formerly executives were able to do creative work until the ages sixty-five and seventy. Pushing day after day, afraid of competition from young

men, relaxing with only alcohol instead of exercise, and taking little time off for soul searching and careful life evaluation, they end up against a brick wall at the age fifty, with strength and brain power dissipated.

The man who puts no rhythm into his life can count on putting in time between white hospital sheets, spending one hundred per cent of his time trying to regain his health. There are no sick successes, only sick failures. It takes buoyant, strong, and hearty good health to achieve success in today's competitive world.

If your husband is an executive or a hard worker, encourage him to take rest and relaxation periods throughout the day. He can lean back, close his eyes, and relax, if for only one minute. The one-minute vacation is worth a lot to the nervous system in preventing a blow-out or a breakdown. A five-minute rest period before lunch and a fifteen-minute nap before supper stand anyone in good stead, but especially the high-tension mental worker.

Rest Before You're Tired

To keep up your strength you must rest before you become bone tired. This principle was proved by efficiency expert, F. W. Taylor, to be a sound idea. He concluded

that rest makes for greater work-load capacity. In Mr. Taylor's experimentation men who unloaded pig iron from freight cars were tested. Their normal daily load was twelve and one-half tons, carried on their shoulders. Working on a time and motion basis, one worker was stopped to relax fifty-three per cent of the day. The resulting day's work load was an amazing forty-seven tons. By resting more than half the time, the man carried almost four times as much pig iron and at the end of the day was not nearly as tired as he usually was.

This experiment proved that small work loads can produce more than large work loads. Relaxation is best before, not after, you become tired. Workers are less tired at the end of the day and accomplish more work if allowed frequent relaxation periods.

An ancient Egyptian physician once wrote: The rower reaches the shore partly by pulling and partly by letting go, partly by pulling and partly by letting go. The archer strikes the target partly by pulling and partly by letting go, partly by pulling and partly by letting go.

"Temperance and labour
are the two true physicians
of man."

—Rousseau.

Most of us have a hard time letting go. As the saying goes, "Let go and let God." When the going gets tougher than we can handle we should roll with the punch, let go, and let God carry the burden. We have found that we are too weak to carry it, and He relieves us just when we need relief most, if we but ask in prayer.

Motion does not necessarily mean progress. Many a person is a dynamo of motion, but he may have accomplished little by the end of the day. Effort must be directed, concentrated motion with a goal in mind.

When you are in motion you cannot think. Thinking requires quietness—stillness of mind and body. Distractions, people, and noise can shatter thought. Privacy and relaxation are commodities hard to come by in the city these days. Our culture seems to demand televisions, radios, telephones, talking, high-fidelity phonographs, roaring automobiles, rattling trucks, and beeping buses. Peace and quiet is hard to find. Head for the quietest place in your town the next time you have some soul searching to do or deep meditation you would like to enjoy. In a beautiful park you have a quiet surprise in store. You find rest and peace.

Put a little rhythm into your living before you actually need it.

HOW TO KEEP YOUR CHOLESTEROL LEVEL LOW

If you're one of the many who are confused about the pros and cons of the cholesterol you have in your blood stream, you have lots of company; but this in no way lessens its importance. You won't find many scientists today who do not agree that the saturated fats found in meat and dairy products are definitely related to heart disease, while the poly-unsaturated fats in vegetables are not.

Cholesterol, as almost everyone knows by now, is the whitish fatty substance that we obtain in two ways: it is manufactured by the body from the food we eat and it is obtained directly from meat, egg yolk and dairy foods. There is no cholesterol in plant foods such as fruit, vegetables, grains, cereals, and nuts.



Dr. Campbell Moses, medical director of the American Heart Association, states: "Cholesterol is a very important component in the body's economy.... We make about twenty times as much cholesterol in a day as we take in (less than a gramme a day) Cholesterol will vary fifteen to twenty milligrammes in the course of a day, but it doesn't jump around 100 per cent like blood sugar.

"In most cases," he says, "our mechanism for handling cholesterol is reliable and effective. Occasionally, people will inherit just plain bad cholesterol genes, and they will have abnormal metabolism in very early life. In recent reports there have been indications that one in every 100 newborns has a very high level of cholesterol."

For such cases babies are put on a low fat, low cholesterol diet to correct the condition and if the condition persists there are new cholesterol-lowering drugs used to bring levels down to normal. Doctors assure us that if children are properly cared for early enough in their infancy, lives can be saved.

What is a normal cholesterol level? At eighteen years of age, both boys and girls have an average level of 180 milligrammes. The male level rises rapidly, until by the age of forty it has reached 240 milligrammes. Females, however, have a low cholesterol level (it does not reach 240 milligrammes until menopause) and they are much less vulnerable than males to a heart attack until they reach this period in their lives.

Other factors which must be considered as highly relevant in the production of cholesterol include the following:

1. A high calorie intake increases susceptibility to a high level of cholesterol.

2. Stress—both physical and emotional, with corresponding high blood pressure, has much to do with the manufacture of cholesterol.

3. Insufficient exercise to keep heart and arteries in shape also causes increased cholesterol. A flabby body is not conducive to good health, for many reasons.

4. Overweight should be avoided.

It takes from between ten to twenty years for cholesterol deposits to build up and result in atherosclerosis, and during this time there are usually no symptoms. Therefore, the best advice for preventing heart disease is given by Dr. Roger J. Williams, famous biochemist:

"Concentrate on the *quality* of the foods consumed.... those which are generously endowed with essential nutrients, should take precedence over those processed foods that crowd out the good foods, contribute mostly calories and provide very little in the way of amino acids, minerals, and vitamins."

Limit the number of eggs eaten—even lacto-ovo-vegetarians need to be careful of their intake. No more than two or three a week is advisable.

VACCINATION:

the best medical insurance

by NANCY ROSENBERG

THE baby gurgles happily on the examining table, oblivious of the doctor and his hypodermic needle. In a corner the baby's mother covers her eyes. Minutes later it is over, the baby calm but no longer gurling, his mother relieved and reassured. The inoculation may give her baby a slight fever or make him feel a little out of sorts, but this is a small price to pay for the protection it will give him against a potentially crippling or fatal disease.

Inoculations like this one are the very best medical insurance and certainly the least expensive. Properly administered, they can prevent diphtheria, whooping cough, tetanus, polio, typhoid, smallpox, cholera, tuberculosis and a number of other serious diseases.

This miracle of preventive medicine was discovered about two hundred years ago. The first person to receive it was an English boy, James Phipps, who lived in the farmlands of Gloucestershire. There, in 1796, Edward Jenner inoculated him with cowpox with the belief he could never get smallpox. Cowpox is a mild disease, smallpox a severe and often fatal one. When Jenner inoculated James Phipps with smallpox germs a few weeks later, the belief was borne out. It proved impossible to infect the boy with smallpox.

Jenner's discovery was called vaccination from vacca, the Latin word for cow. A huge success in its

own time, it is still in use today. But, though children were protected against smallpox, they continued to die from other diseases. It was only years later, when scientists discovered just why vaccination worked so well, that they were able to apply the same principle on a broader scale.

Antibodies

One of the body's natural responses to invasion by disease germs is the production of antibodies, special proteins that are designed to neutralize the germs and render them harmless. Each germ has its own special antibody that fits it as a lock fits a key. Measles antibodies, for example, are effective against measles germs but powerless against the germs that cause smallpox or polio. Once the body has produced antibodies for particular germs, it never forgets how to do it. If ever the germ comes back again, it is neutralized before it can do any harm. That is why people almost never catch diseases like measles and smallpox more than once.

Vaccination is a way of taking advantage of this natural defence mechanism. When James Phipps was inoculated with cowpox germs, his body reacted by producing cowpox antibodies to neutralize them. Luckily, smallpox germs are so similar to the germs



that cause cowpox that cowpox antibodies are able to neutralize them too. By allowing himself to be infected with a harmless disease, James Phipps was able to acquire protection against a far more dangerous one.

Generally speaking, vaccines work on a similar principle. Each is made from a germ that has been changed or weakened just enough to prevent it from causing a serious illness but not enough to destroy its ability to stimulate the production of antibodies. Some vaccines are prepared with killed germs. Once the vaccine has been administered, the antibodies are on the scene before the harmful germ arrives, and the serious illness does not have a chance to develop. Jenner was fortunate in discovering a ready-made smallpox vaccine that nature had provided. Developing vaccines for other diseases has often taken years of arduous work. Scientists have isolated the disease germs, and, in some cases, grown them in the laboratory animals that have been found to be susceptible to the disease. So, ferrets have been given flu, monkeys polio, and rabbits rabies. Only when animal experiments

have shown the safety and effectiveness of the vaccine are the first tests carried out on people.

Other Discoveries

All vaccines are made in accordance with this same general procedure, yet each micro-organism presents problems of its own. One of the great triumphs of modern virology was the development of a vaccine for polio, a severe disease that can damage the spinal cord, causing paralysis and death. Polio is caused by a virus, a tiny micro-organism that grows only inside living cells. To raise viruses in the laboratory scientists must find just the right living cells in which to grow them and learn to keep these cells alive under laboratory conditions.

For many years, no way could be found to grow polio virus in the laboratory. Without a large supply of the virus, there was no hope of developing a vaccine. The break came in 1948 when Dr. John Enders and his colleagues at Harvard University finally managed to solve the problem, winning a Nobel Prize

The common cold is one virus disease that has thus far stumped the vaccine-makers. Colds are caused not by one virus, or even one group of viruses, but by well over one hundred different ones.

for their efforts. They succeeded in growing polio virus in cells which were themselves growing on the glass walls of a laboratory flask.

When large quantities of the virus were available Dr. Jonas E. Salk undertook the development of a "killed" virus vaccine, one in which the virus was inactivated with formaldehyde. It took several years to complete this work and to test the vaccine for safety and effectiveness. The Salk vaccine, still used to-day, is administered by injection. In addition, Dr. Albert B. Sabin has developed a "live" polio vaccine, one in which the virus is weakened rather than killed. The Sabin vaccine is given by mouth.

Keeping Up with the Flu

The influenza virus has been leading scientists a merry chase for decades now. A microscopic quick-change artist, it comes in several different types, all of them subject to sudden, unpredictable alterations. So varied are the guises of the flu virus that last year's flu vaccine is sometimes totally useless against this year's model of the germ.

Keeping up with the flu virus is the job of a network of influenza centres that WHO has set up all over the world to act as listening posts. Whenever an epidemic breaks out, the virus responsible for it is isolated at the nearest influenza centre and is closely examined. If none of the available vaccines offers protection against it, word of the new virus goes out to all the other influenza centres and samples of it are made available to them. Tremendous efforts are made to produce a new vaccine before the virus has had a chance to spread too far.

The common cold is one virus disease that has thus far stumped the vaccine-makers. Colds are caused not by one virus, or even one group of viruses, but by well over one hundred different ones. Combining all of them in a single vaccine is impossible with the techniques that are presently available. Protection against colds, if it does come, will probably take the form of a drug with broad antiviral action.

One of the most recent vaccines to be developed is for German measles, also known as rubella. German measles is such a mild disease that there seemed little reason to have a vaccine for it until 1941 when a startling discovery was made. In Australia, thirteen babies, all of them blind, were found to have been born to women who had had German measles during their pregnancies. Further research revealed German measles to be a powerful threat to the unborn child, producing not only blindness but deafness, congenital heart disease, and mental retardation.

With this discovery, intensive efforts were undertaken to develop a vaccine for German measles. After twenty years of work the German measles virus was finally isolated, and by 1969 a vaccine was available. In some countries, it is given routinely to young children to protect expectant mothers by eliminating the main source of contagion. In other countries, it is given to teen-age girls and young women.

A Great Challenge

Once scientists have developed an effective vaccine comes the vital job of getting it to all the people who need it. Where children have access to routine medical care, this is relatively simple. In vast areas of the world, however, where medical services are inadequate, epidemics of preventable diseases continue to rage just as they did in the days before vaccines. Bringing the benefits of modern medicine to everybody everywhere is one of the great challenges facing the world today.

An example of what can be achieved by a well organized global vaccination effort is the smallpox eradication programme of the World Health Organization. In 1967, WHO member countries joined hands in an intensified global programme to wipe out the disease. Countries where the disease occurs frequently launched mass vaccination campaigns. Vaccine production was stepped up, and many countries contributed to WHO's vaccine bank.

As the various national campaigns went into operation fielding numerous teams of vaccinators, many of them newly trained, a marked decline in the incidence of the disease was recorded already in the second year of the eradication programme. Simple as it may seem, such an operation requiring the sending of vaccine over long distances in tropical areas and its use among people in remote villages, would have been much more difficult a decade or two ago because vaccines were perishable and required constant refrigeration to maintain their potency. Now

freeze-drying has changed all that. When vaccines are dried under a high vacuum while frozen, they can be kept under ordinary conditions for long periods of time without any danger to their strength or purity.

Jet Injector Gun

The vaccinators' job has also been facilitated by the jet injector gun, a device that holds from fifty to five hundred doses of vaccine and shoots them painlessly right through the skin. Bifurcated needles have helped too. Vaccinators using them can vaccinate up to 1000 people a day with only a fraction of the vaccine that would normally be required.

The success of the smallpox eradication programme has been dramatic. In 1967, smallpox was reported by forty-two countries; in 1971 by only sixteen. The total number of reported cases is down, to, from 131,140 in 1967 to 52,000 four years later.

In some countries, in addition to vaccinating people of all ages against smallpox, the vaccinating teams have tried to check the spread of measles by administering measles vaccine to as many children as possible. Far from the mild disease many people

Vaccinations do much more than protect the individuals who receive them; given on a large enough scale, they lower the incidence of communicable disease in the entire community.

believe it to be, measles can be a killer. In parts of Africa, where it usually strikes very young children, measles is responsible for over half the deaths among infants.

A Change for the Better

In recent years, vaccination has begun to change the medical face of the world. Many diseases that were once commonplace are now largely unknown in many areas. No child need ever suffer from them again, yet tragically, many of them still do. Not all of these children are beyond the reach of modern medical care. Some have access to hospitals, doctors and medical centres, yet through negligence, or lack of information, they fail to get the immunizations that are so vital to their own well-being and to that of the peo-

ple around them. Maintaining the progress that has already been made, and improving upon it in the future, requires the understanding and co-operation of parents everywhere.

Which vaccinations a child receives, and when he receives them, depends to some extent on the diseases that are prevalent in his locale and on the availability of medical care there. Experts are agreed, however, that where medical services are readily available infants should by the age of one year get three doses of the triple vaccine against diphtheria, pertussis (whooping cough) and tetanus. Polio vaccine is also given early in infancy, followed by measles vaccine at one year, sometimes in combination with German measles or mumps. Vaccination against smallpox is compulsory or recommended in most countries of the world. The primary vaccination is given early in the child's life.

Vaccination is regarded as the backbone in the fight against another scourge of mankind—tuberculosis. Despite the efforts of governments and many voluntary agencies, the disease continues to rank high as a public health problem not only in developing countries but in several technologically more advanced countries. One of the major concerns of WHO here is to help improve and maintain the quality of BCG vaccine by giving advice, particularly to competent and economically operating national BCG production laboratories. BCG vaccine is given as a routine measure to children in many countries that have a national tuberculosis control programme.

Vaccinations do much more than protect the individuals who receive them; given on a large enough scale, they lower the incidence of communicable disease in the entire community. When the number of susceptible individuals is reduced, the chances of passing a disease from one person to another are reduced as well. The effect of this "herd immunity" can protect even those who have not been vaccinated. Thus smallpox is usually effectively controlled when more than eighty per cent of a community are vaccinated against it. The same is true of diphtheria.

Vaccination is indeed an aspect of health care where the community services must reach into the home. From earliest infancy, all children should receive the vaccinations that are recommended by their local health authorities and booster shots should be given to maintain adequate levels of immunity. Not a single child anywhere should be denied the protection for which medical science has struggled so long and so hard.

—Courtesy: WHO

The Doctor Looks at ALCOHOL

ALCOHOL is a very widely used chemical compound in laboratories for experimental purposes. It is a preservative for storing animals and plants to be used in demonstrations. It's also a very good solvent!

Unfortunately, it is imbibed for the pleasurable effects that people get from it. As a result of such use, its toxic effects impair health.

For any one specific person, there's no way to indicate what is excessive in the use of alcohol. As with any other substance, some people are more sensitive to it than are others. Almost anyone can eat strawberries with no ill effects. But a few people can't eat strawberries—even one strawberry—without developing hives. Similarly with alcohol. Some people can imbibe tremendous amounts of it and seem to get away with it—at least to some extent. Others aren't able to take it in even small amounts.

If there are any doubts about alcohol being injurious to health, watch a drunk stagger down the street. You know that he is having difficulties with his brain—difficulties produced by the toxic effects of alcohol. Some will get intoxicated with one drink, and others will require more. In my opinion, anyone who takes at least one drink every day is a chronic alcoholic. Others may place that figure higher, but I would place it right there.

Alcohol—A Drug

Alcohol is a drug, and it is used at times in the same ways as are certain other drugs.

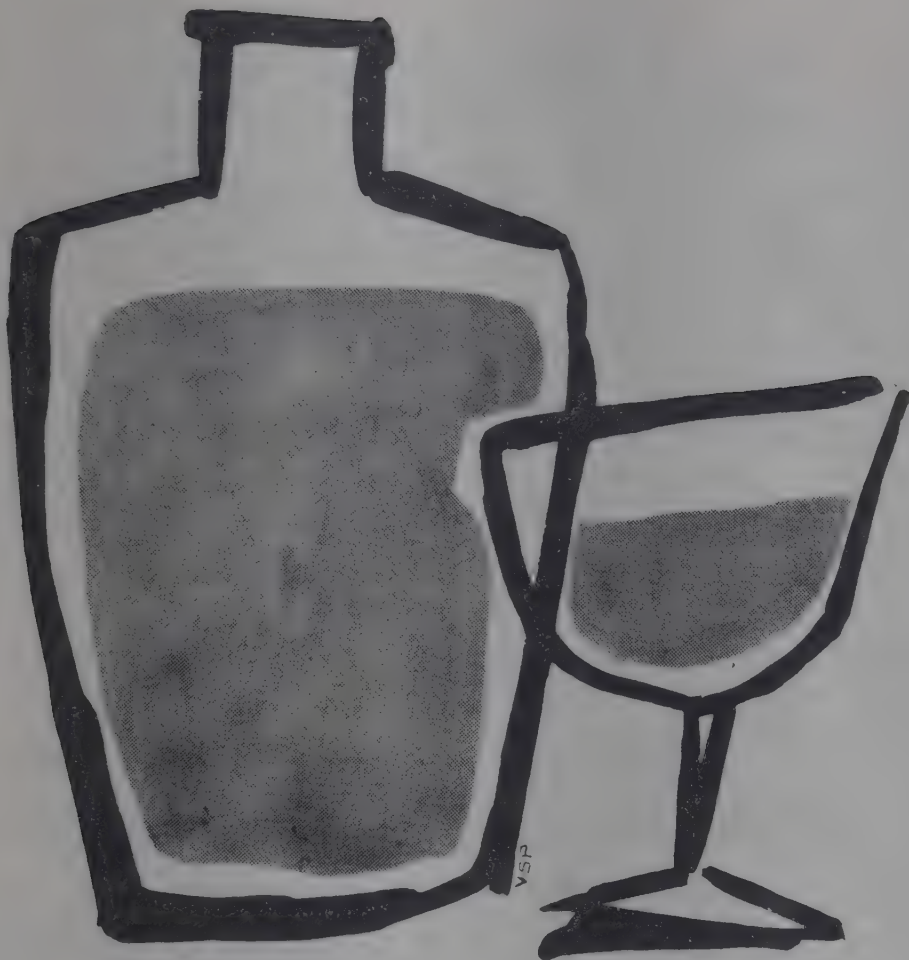
When it is used as a drink, most people take it for its effect on the central nervous system, or for the psychic effect on one's mind. It helps people forget their troubles. It makes some people feel a little euphoric—a little happy. Others become the opposite and want to fight:

In general, when alcohol gets into the circulation it reaches every cell of the body. Every cell is affected in one way or another by alcohol, but certain cells are much more sensitive than others.

The brain is relatively sensitive to alcohol, as we see from the behaviour of people who drink. The liver is another area where the cells can be injured. This is also true for the heart and the gastrointestinal tract. It's also true for the lungs. In fact, every cell in the body can be damaged by alcohol.

Alcohol's effect on the lungs is seldom mentioned. When you drink alcohol on an empty stomach, particularly in large quantities, a high concentration of alcohol enters the circulation. From the stomach, it goes to the liver, then into the right side of the heart and through the lungs, where it can damage the delicate cells of the alveoli, or the air sacs of the lungs, then back into the heart again, where it can also cause damage.

Alcohol affects all parts of the human system—even the larynx—the voice area. People who drink for a long period of time, and who drink large quantities of alcohol, tend to have a brassy voice. I often refer to it as the voice of an alcoholic. If you look at the throat of a heavy drinker, you see the infected area. I think this is related to the use of alcohol.



Alcohol interferes with the vital functions of the body. Alcoholism is really one of our big problems, and it needs serious attention.

Many of these people also smoke a lot, but the smoke isn't solely responsible. There isn't the same effect on the voice and the vocal cords in a heavy smoker who does not drink. The drinker's vocal cords become thickened and produce a rather coarse type of voice.

Cell Damage

Unfortunately, many of the cells damaged by alcohol are never replaced. This is especially true in the brain. We are born with as many cells in our brain as we'll ever have the rest of our lives, but we can lose them as time goes on. It seems that anyone interested in maintaining good healthy brain cells would not damage them by anything, certainly not by alcohol. Some cells can be damaged and still regenerate—at least partially—but there's never a regeneration of brain cells.

This is also true for the heart. We are born with as many heart cells as we'll ever have. Since the heart has to function all the time to keep us alive, we have to take care of the heart cells. Alcohol damages the cells of the heart muscle and produces irreversible damage.

The liver has a great capacity to regenerate, but even it suffers a limitation. An excessive amount of damage will harm the cells to such an extent that their regenerating capacity is impaired. The cells that regenerate are not normal healthy cells.

I've done quite a bit of research about the effect

of alcohol on the heart. One syndrome, or disease state, is called alcoholic cardiomyopathy. The latter word has to do with the heart muscle. Alcohol can produce this disease. The heart becomes enlarged; it fails to pump adequately. As a result of this, the patient becomes short of breath, the liver becomes enlarged, and the neck veins become distended. The patient then develops swelling or dropsy involving the lower extremities. The dropsy moves up the legs and thighs and into the abdomen. Fluid accumulates in the abdomen, in the lungs, and in the cavities around the lungs. In addition to that, once this cardiomyopathy develops, there's a tendency for the heart to beat in an irregular fashion. Some of these irregularities are rather serious and actually can be fatal. A patient with alcoholic cardiomyopathy usually dies suddenly because of the disturbance in heart rhythm.

Alcoholic cardiomyopathy is a fairly common disease in the United States and also in other countries where the intake of alcohol is high. It's particularly common where there is malnutrition associated with improper eating and alcohol intake. In experimental animals the heart muscle can be damaged by feeding alcohol as a fluid along with the animals' diet. When you look at these heart cells under an electron microscope, it's amazing how extensive the damage to the cells is. The fibres contract, become fragmented, and become disintegrated. There's an accumulation of fluid in the heart muscle. The damage is quite extensive, both in experimental animals that are fed alcohol and in men who are alcoholics and who develop cardiac disease.

Toxic Effects

Alcohol produces a toxic effect on the heart muscle cell. It denatures proteins, destroys enzyme systems and the other substances necessary for healthy performance of organized cells. Cells are very complex structures in which every component must be in perfect order if the cell is to function adequately. Alcohol, by destroying some of these components, interferes with the function of the cell, and then that cell automatically dies.

It's rather like a machine. If you destroy the carburettor or the timing mechanism of an automobile—even though the rest of the automobile may be in perfect shape—it's still not going to run. Or if you remove the spark plugs or take the wires off the spark plugs, the automobile won't function. The same thing is true of a cell. You don't have to destroy every component of the cell to interfere with its life and kill the cell. Just destroy one vital and necessary component.

Some patients who eat well but who drink heavily—and particularly have a tendency to drink on an empty stomach—damage the heart muscle and develop alcoholic cardiomyopathy. It seems, however, that if there's malnutrition in association with heavy alcohol intake, the damage comes on more readily and seems to be more extensive, but it's not necessary to have malnutrition only. The same thing is true of the liver. Patients also

develop alcoholic cirrhosis of the liver when they eat well but still drink large amounts of alcohol.

When cell damage is rather extensive, it's possible to see it with an ordinary light microscope. With magnification up to between fifty thousand and 100 thousand times in an electron microscope, however, it is possible to see how extensive the damage really is. In fact, it's amazing how the heart is able to function at all with such tremendous damage.

Alcoholics are also much more prone to other diseases. Alcohol interferes with their resistance to trauma. People go into a state of shock much more readily when they are alcoholics. They're more prone to suffer from the stresses of hot and cold climates and certainly more prone to infections.

The intake of alcohol is very heavy today. I think it has a detrimental influence on our entire population. I think many people in positions where they have to make important decisions have suffered damage to their brains—some degree of Korsakoff psychosis, which is a fairly common thing among alcoholics.

Anyone who drinks heavily for any length of time will receive some damage to his brain. His brain will not function normally or as it did previously. People in positions to make important decisions that influence the welfare of their companies or their families or their country should not be alcoholics. This, I think, is of major importance.

Also I think drinking is perhaps a much more serious problem than smoking. When an alcoholic drinks, he not only injures himself; he injures his family, his children, his associates, the business people with whom he works, and then those dependent on him in the decisions he makes that influence others.

Alcoholics frequently start out as social drinkers. There's a great tendency today for people to have a drink at night—a sort of relaxation period. Women see their husbands drink, and before they know it they are drinking socially with their husbands; then they become alcoholic. In my experience, female alcoholics are much worse to manage from a medical point of view than are male alcoholics, particularly since the mother is really the key to the family. Parents who drink in front of their children indicate to them, to some degree, a sense of approval of alcohol.

Alcoholism is really one of our big problems, and it needs serious attention. The dangers of alcohol must receive much more attention and publicity than it is receiving. Probably the best way to handle that is through education and through influencing the behaviour of adults and parents in families. ***





TO
LOVE



TO
HONOUR



TO
CHERISH



Secrets of a Happy Marriage
by A. L. HEFREN

It is in the first ten years of marriage that the most testing trials of the union come. When the orange blossom has lost its scent and the glamour of being the new and latest bride has faded, the real problems of living together begin to loom very large—so large, in fact, that it is commonplace for young people in their later twenties to wonder if they made the right marriage after all.

There are fundamentally only two ways of meeting this situation. One is to look to divorce as a solution, and try again—and again—and again, till final disillusionment comes. The other is to settle

down earnestly to the real and persistent work of adjusting to one another's personalities.

This is the test of reality of any marriage and of the base upon which it rests. If the bond has been nothing more than an indulgence of a sexual appetite, the marriage is headed for the rocks. All it needs is the stiff breeze of a sudden temptation to bring infidelity and the loss of trust. This is the fallacy inherent in the current theory that a pair should sleep together before they marry. All they learn cannot bring them to the point where they must look at more than a body. It is not without reason that

Just watch your husband's roving eyes as you walk along the street. Is it the plump girls who draw a second glance?

God has forbidden such unions. He forbids only to protect; He denies only to reward.

Divorce as a solution is quickly seen to be no solution at all. It is, in fact, in the overwhelming number of cases nothing other than an escape mechanism. Instead of facing and solving the problem, young people, and older ones too, run away from it. Like all such escape devices it educates in failure. What then is left?

Full-Length Mirror

First of all a sober re-assessment, which should begin, not with the partner's shortcomings but with one's own. Every marriage counsellor knows that the initial interview is always a recital of complaints, never a confession of faults, unless in a very cursory fashion to make a pretence of objectivity.

Let us start with that very unflattering device—a full-length mirror, and let the ladies show us the way. Do not choose a moment when you are dressed to please, but just go and stand there some morning without premeditation after your husband and

children have left. Don't make excuses and don't soften the light. Do you like what you see? Has the slim girl eaten her way into the fat thirties? Have you comforted your miseries, real and otherwise, with cream cakes and chocolate? No lies! "I hardly eat anything."

Get on the bathroom scales! How much heavier are you than when you married? If you are not pregnant and your weight has increased by more than two or three pounds, get them off by self-discipline—more exercise and less food. Don't fall for the line, "Husband love fat, cuddly wives." Just watch your husband's roving eyes as you walk along the street. Is it the plump (euphemism for that ugly word FAT) girls who

Every marriage counsellor knows that the initial interview is always a recital of complaints, never a confession of fault—unless in a very cursory fashion to make a pretense of objectivity.

draw a second glance? Only a fool nurses twelve stone on his knee and makes light of it!

Now while you are already shocked, take a critical look at your attire. Is it clean and freshly ironed? Do you look frowzy? Would you be ashamed to be seen as you are by a friend? A woman does

not have to dress in *haute couture* to be attractive, but she must look CLEAN, FRESH, and FEMININE. While you are on your inspection, spare a thought for the end of the day. What does your husband see when he opens the door in the evening? A woman radiant with happiness or a tired drab?

Remember you face daily competition and comparisons. Don't run away from them. Compete! You have some tremendous advantages if you use them. Every married man is, at heart, a boy. He wants to be assured of his wife's love, and nothing does this so effectively as for him to see that his home-coming is important—important enough for his wife to make preparations for it. If there are young children the task is harder, but it is not impossible.

I gained this advice recently from a young woman who combines a career and a home: "I spend ten minutes in the morning planning my day so that I am working to a method and not in a muddle." Many a young wife and mother could take that thoughtfully to heart.

Now for the Husbands

Now let the husbands have their turn. Bathroom scales first, please. Men who marry good cooks inevitably bear testimony to the fact by their

bulging waistlines and treble chins. Decide that your weight must not vary by more than two pounds from the pre-wedding figure, and keep it there for life. A fat husband in shorts and sports shirt is a sight to discourage any wife from reform. Husbands should find their future in work, not in their bodies!

Next item in the schedule is communication. No art is more difficult, none demands greater and more persistent learning. The first requirement is to attempt to see the other's point of view as he or she sees it. You know your own viewpoint. You have rehearsed it *ad nauseam*. Often when your partner has been expressing hers, you have been silent but have not been listening. You have merely been preparing your next speech.

Listen, LISTEN, and honestly evaluate. Because of the barrier of language it is impossible for one human being to express to another exactly what is thought. Although words are so coloured by feeling that some degree of misunderstanding is inevitable, honest love can do much to solve the problem. If, my male reader, you married a moron, serve you right. You chose her. Now see what you can do to lift her levels.

One fundamental need in communications is honesty; but do not confuse this with

Nothing will so build unshakable strength into a marriage as learning to trust in each other and in God. It is difficult, if not impossible, to quarrel when there is such a trust. When a counsellor is faced with a threatened marriage he almost inevitably finds that the partners do not have a reserve of strength that comes from this kind of faith.

tactlessness or rudeness. If you give the other the proverbial piece of your mind you may find that you have inadvertently parted with all your mental capital. That is not what is meant by honesty, but rather a sensible, moderate statement of what you really mean. Nothing so marks a successful marriage as the capacity to talk freely to one another, to express one's doubts, fears, pleasures, and pains. This can exist only where there is trust. That quality can never emerge from deceit.

For that reason never tell a lie to the other. No, that is not a George Washington legend but an indisputable need. A lie is too expensive a solution for any husband or wife. Lying will inevitably be revealed, and trust will be shattered. Make it your pride to enable your partner to say, "My husband/wife would not tell me a lie." Obviously, lying is sin, but God adds a bonus in marriage when we refuse to accept the temptation to escape from a difficulty by a lie. He gives a sense of trust that is a rock of safety when our mooring lines threaten to break.

Closely allied to this is another "must." Learn to keep your marital secrets. Marriage is for two people destined to become one. When you introduce a third in the sanctity of the home you wreck your unity. Loyalty has many forms but it allows of no compromise. Many a woman thinks herself loyal because she permits no other man to be familiar, and many a husband preens himself because he allows only his tongue to offend, never his eye.

Perhaps there is no more insidious form of disloyalty than carping criticism, particularly in the hearing of others. It is a sound rule that you should not criticize once without praising thrice. Criticism is a very discouraging medicine, but praise can work miracles. Praise, I said, not flattery. There are some men who are lavish in their praise of other women's cooking when dining out, but never have a word even of thanks for their wife's efforts to please.

If a young wife specializes in burnt offerings, why not let her have a chance to master the art of cooking? Since presumably you married her for

some other quality which redeemed her lack of homemaking abilities, hoe in now and help her develop them instead of whinging.

Nothing will so build unshakable strength into a marriage as learning to pray together. It is difficult if not impossible to quarrel if you pray. Almost inevitably when a counsellor is faced with a threatened marriage he finds that the partners go each his own way spiritually.

Finally, men should cultivate their memories. A thoughtful husband is one who does not forget such important days on the calendar as his wife's birthday and wedding anniversary.

Such occasions are of tremendous significance to a woman, and you ignore them at the peril of your own happiness. They should not only be remembered but celebrated. The cheapest and most unimaginative way is to buy a card at the nearest shop which

makes a profit from exploiting sentiment. What about planning for the event with the same care that you plan for your business? What woman would not be thrilled to find that her husband had been first out of bed that morning to bring her a dew-wet jasmine or rose from the garden with a personal handwritten message of love fastened to it?

Why not arrange to take her out for the day or on the nearest possible day on a mystery excursion which you have planned because you know it will give her special pleasure? There are dozens of ways to say "I love you" if you will bestir your sluggish imagination; and every one of them will set the wedding bells ringing again in your wife's heart. Each of them can turn a middle-aged woman into a radiant young lover.

It really boils down to this: Men, do you care enough to

try to convince your wife that you still love her, to court her, to assure her that she is still your sweetheart as well as your wife? Ladies, do you care enough to build a home base that is a rock of security for your husband, a haven to which he gladly returns?

Of this I am convinced: The greater responsibility lies with the husband. Any woman who is constantly assured of her husband's love and who is not starved for its vocal expression, finds it difficult to settle down to being merely a married frump. Together you can build a sanctuary in this world which will make it a heaven on earth; but you must work at it. You must continue to work all your lives, but the rewards are glorious. You should be happier when thirty years married than you were on your honeymoon. Why wreck it? You vowed "to love, to honour, and to cherish." Keep your vows by the grace of God. ***

When Skies are Grey

If I have strength, I owe the service of the strong;
If melody I have, I owe the world a song;
If I can stand when all around my post are falling,
If I can run with speed when needy hearts are calling,
And if my torch can light the dark of any night,
Then I must pay the debt I owe with living light.

—Charles Coke Woods.

Interest That Pays High Dividends

by SHIRLEY M. DEVER

How do you go about letting another person know you are interested in him? Even if you don't have a "green thumb" for friendships, here are ten ways you can cultivate them:

Remember that a person's name is all-important to him. Make a special effort to remember people's names, and use a person's name when next you meet. If your memory isn't the keenest, you may have to work at this.

Congratulate persons who have just married, had a new baby, passed from high school or college, et cetera. Remember birthdays and anniversaries when you can.

Extend sympathy in bereavement. Listen to people's disappointments. Lend a helping hand when it is needed.

Deflate your human ego as much as possible. If you are inclined to be an introvert, ego-killing will do wonders in making you outgoing. Remember to put other peo-

ple's problems and wants and needs ahead of your own.

Like people—habitually. To do this, accentuate their virtues, minimize their faults. Each human being has desirable traits. It's up to you to find them.

Be friendly and outgoing by practising selflessness. If you don't have a winning smile, at least come up with a ready smile. Everybody loves somebody who is warm!

Think of yourself as a comfortable old shoe. Then work at being so natural and relaxed that people will want to warm up to you.

Develop an interesting personality by reading, observing, and living an active life. In this way you'll not only find others interesting; they'll find you fascinating too.

Practise the golden rule. Treat others the way you want them to treat you. Although this dates back to Biblical times, it works just as effectively now.

Live with God in your mind. Learn what it is to have a deep spiritual life. Then try to share your inner power and strength with others.

After you learn for yourself all about the kind of interest that pays high dividends, you'll discover you are much happier than you were before. You'll know that rather than shying away from people who are in trouble, this is the precise time you must make the scene. When your inner radar tells you someone needs you, you'll rush in where a fool would fear to tread. Some times you can do no more than lend a listening ear, but often this is all that is necessary to take the pressure off a person in dire circumstances.

Norman Vincent Peale put it so well: "Give strength to people, and they will give affection to you." Talk about a high dividend for your efforts! Casual acquaintances need your interest. Friends need more—they need support and strength as well. ***



Normal Parents; Abnormal Babies

An Understanding of Recessive Inheritance

by W. R. CENTERWALL, M.D., M.S., M.P.H.

HOW can it be that our child's abnormality is inherited? My wife and I are perfectly normal, so this defect we see in our baby surely cannot have come from us!" Those of us involved with genetic counselling and the need to explain the mysteries and wonders of inheritance have heard this question time and again. And most certainly this is a reasonable question, stemming from very natural doubts. How, indeed, is it possible for the obviously "bad" to come from the apparently good? (By "bad" we mean undesirable, but not in the context of moral evil.)

To help us in this seeming paradox it is necessary to understand some of the basic principles of *heredity*, that science which deals with *chromosomes* and *genes* and the passing of family characteristics from parent to offspring. Such "inherited" characteristics begin when fertilization or conception takes place, and differs from "acquired" abnormalities resulting from infection and injury occurring during pregnancy.

Chromosomes and Genes

Chromosomes are tiny threads contained in each body cell. In normal humans almost every cell has 23 pairs (46 total) of chromosomes, half of which come from the father and half from the mother. These chromosomes carry the thousands of genes from one generation to the next. These *genes* are extremely small protein particles, not even visible with a powerful microscope. At any one spot on a chromosome there will be a *gene*, and that spot is called the *locus* of the gene. At the same spot on the other chromosome of that pair is a partner gene concerned with the same feature of inheritance. These partner genes are called *alleles* (*ah-lels'*) of each other. It is the combined effect of each pair of genes that determines the inheritance.

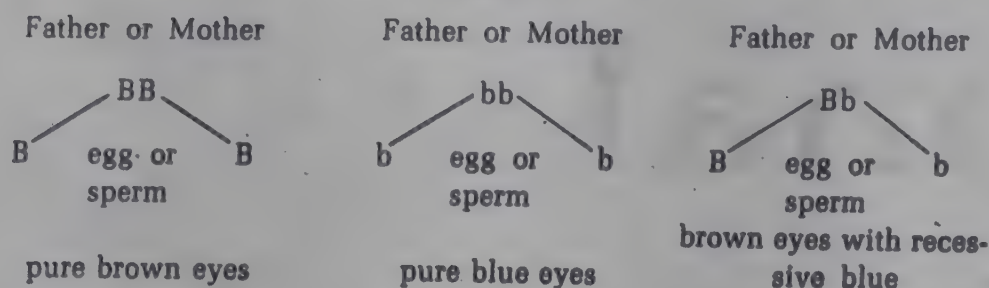
We are what we are because of many thousands of different chemical reactions. These reactions are determined by the various genes we inherit from our parents. Because these chemical reactions are

similar to those operating in one or the other of our parents we naturally have many similarities with our parents—"family resemblances" as we say. Practically all our features—the colour of our eyes, the shape of our nose, our blood type, et cetera—are the result of the genes we receive from our parents. And many of the varied aspects of our bodies are the combined effect of simple pairs of genes. Of each pair of genes, one gene comes from our mother and the other from our father.

Family Feature

Although some of us seem to be a blend of the characteristics of our two parents, usually we have certain features more like one parent than the other. We may have, for example, our father's chin and our mother's eyes. And we may in some ways even resemble one of our grandparents more than our own parents. There is often a feature of a family that seems to dominate the picture—"they all have the nose that is so

Figure 1



characteristic of that side of the family" or some similar observation.

All these facts are easy to understand but they haven't yet answered the question, How can a child inherit abnormal qualities from normal parents? This requires an understanding of *recessive* and *dominant* inheritance. To help explain, we shall use a simple analogy.

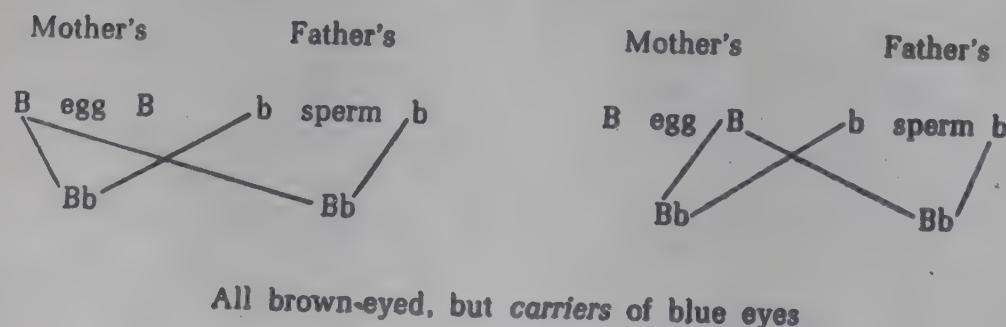
Recessive and Dominant

If a drop of water is mixed with another drop of water, the result is a large drop of water. If a drop of ink is mixed with another drop of ink, the result is a large drop of ink. But what happens when a drop of water and a drop of ink are mixed together? The product is a large drop of something that

looks like ink and probably writes almost like ink. However, if we study it carefully, we might be able to show that the drop is not really pure ink but is, in fact, a mixture. You might say the drop is *carrying* the presence of the water. In other words, the ink colour is *dominant* over the water. We say the water is *recessive* because it doesn't show up. This simple illustration then can be applied to the concept of *dominant* and *recessive* genes and the *carrier* of *recessive* (hidden) genes.

Most of the time the two genes of a pair will be identical, as in the two drops of water or the two drops of ink. Sometimes, however, the genes of a pair, although both are concerned with the same features (a pair for eye colour, a pair for blood type, et cetera), are not identical. In genetic language, the

Figure 2



identical pairs would be called *homozygous* and the nonidentical pairs, *heterozygous*.

Usually when the genes of a pair are different, one of them will have a tendency to dominate the situation, often times so much so that the other gene is hidden, as illustrated by the water and ink combination. Persons with such a hidden gene are called *carriers* of the particular gene.

With some nonidentical gene pairs the dominance is not complete and the effects of both genes can be seen, resulting in a blend somewhere between the effect of either gene. A simple analogy would be mixing white and black paints, with the resultant gray blend. A real-life example of such inheritance is voice pitch. The gene for a high-pitched voice paired with one for a low-pitched voice results in a voice with a medium pitch. Most examples of blend or intermediate inheritance are the combined effects of several pairs of genes concerned with the same feature or function, such as skin colour, height, and intelligence.

Independent Identity

Still other times, the different genes of a pair maintain independent identity. The simple analogy here might be the mixing of red and blue marbles. A human example would be the inheritance pattern of certain blood groups. For example, a person may receive the gene for blood group A from one parent and the gene for blood group B from the other parent. Such a person will have both blood groups A and B circulating in his body and will be typed as AB.

Usually in nonidentical pairs of genes, one is dominant and the other is recessive. By this we mean that where there is a mixture of genes, the dominant one decides the char-

acteristic. Let's take, for example, the colour of the eye. A father and mother each have three possible pairs of genes. If capital B stands for brown eyes and small b for blue eyes, this is how they would be:

A pure, brown-eyed strain of people, such as found in Africa and India, will have a pair of identical genes for brown eyes, BB. When two such people marry, all their children will have brown eyes because each child can receive only a B (brown-eye) gene from each parent. In the same way, people from a pure blue-eyed race, like most Scandinavians, will have only blue-eyed children because they

dren are all brown-eyed, they are all *carriers* of blue-eye genes.

What happens, then, when two people, each carrying a dominant brown B gene and a recessive blue b gene get married and have children:

Looking at Figure 3 we see there are four possibilities:

1. Mother's and father's B genes create a BB, a pure, brown-eyed child.

2. Mother's B and father's b genes create a Bb, a brown-eyed child who is a carrier for blue eyes.

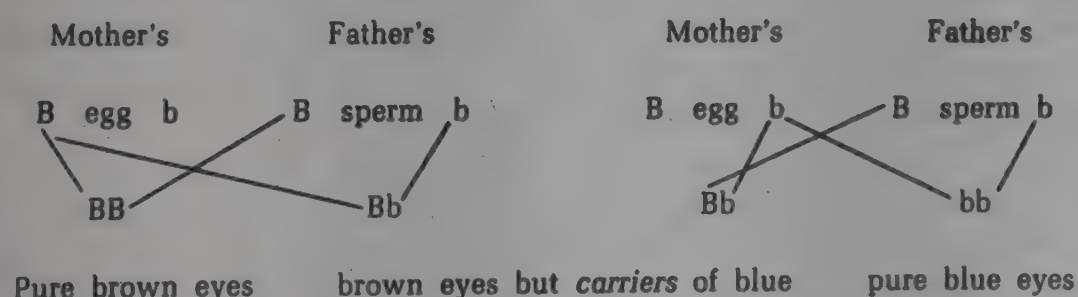
3. Mother's b and father's B genes also create a Bb, another child with brown eyes, but carrying a recessive blue gene.

sequent pregnancies. How does a physician know whether a condition is inherited or not? Most of the time he knows because of certain signs and symptoms that make specific diagnosis possible. Some times he doesn't know; and probably much of the time the *congenital* (born with) abnormality is "acquired" and not "inherited."

It is important to realize that because a gene is recessive it is not necessarily inferior or abnormal. Two genes of a pair, although different, may be equally or nearly equally advantageous, such as in the example we used for eye colour. If blue eyes could not see so well or were more susceptible to disease, then this recessive gene for blue eyes would be called defective. Or if the world were made up of only brown-eyed people, an extremely rare blue-eyed person would be considered a freak of nature and thus the gene would be considered abnormal. But because none of these things are true, the recessive gene for blue eyes is considered only as a variation of the normal. So, often the terms "normal" and "abnormal" are really a matter of relativity.

It is possible, and actually happens in a number of inherited diseases, that the defective gene is dominant over the normal recessive gene (certain kinds of dwarfism, eye cataracts, et cetera). In such a situation, whenever the gene is present, the disorder itself usually is present. This sort of inheritance is what most lay people think of and expect: a defective parent could have a similarly defective child. Through an understanding of *dominant* and *recessive* genes and *carriers*, however, we can better understand how it is possible for normal parents to have an abnormal child.

Figure 3



can receive only a b (blue-eye) gene from each parent.

Now, when a pure brown-eyed woman, carrying only BB genes, marries a pure blue-eyed man, carrying only bb genes, what genes and eye colour will their children have?

Since the mother can give only a B and the father only a b, all the children will have a pair of Bb genes, but all the children will be brown-eyed. Thus we say the brown-eye gene, B, is *dominant* and the blue-eye gene, b, is *recessive*. (It is customary to indicate the dominant gene with a capital letter and recessive gene with a small letter.) Although the chil-

4. Mother's and father's b genes create a bb, a pure-blue-eyed child.

So, when two people marry who are carriers of recessive genes, such as in our example above, there are the same four possibilities: one pure dominant, two carriers, and one pure recessive. Of course we know that each individual family doesn't come up with such a result, but this is about how a large number of families would average out.

Thus it is that many of our inherited disorders occur. Such knowledge of genetics and expectation gives the physician the means of counselling parents about future "probabilities" with sub-

Glands for Go!

by F. FLEISCHMANN

The glands, tiny as they are, provide between them almost all the "go" that's in us. Their products, the hormones, are the stimuli behind the mysterious life processes that go on continuously every second of our lives.

Important as the glands are for our well-being, vital as they are to life itself, their total weight is a mere two ounces.

The Remarkable Pituitary

One of them, the pituitary, usually no bigger than half an inch across, is the co-ordinator of glandular activity. It has its location in the middle of the head, at the base of the brain. From there it issues directives to every part of the body by way of about 50,000 nerve fibres and its hormones in the bloodstream.

Co-ordinating the work of other glands is not the pituitary's only task. As though striving to make itself in its own right, the pituitary gland produces a secretion, called prolactin. This causes a healthy mother's breast to be filled with milk to nourish her offspring. Another pituitary-produced hormone closes a mother's womb after birth,

reducing the ever-present risk of a hæmorrhage at that time.

Growth, too, is influenced by pituitary secretion. This has been dramatically demonstrated by injecting rats who grew to giant proportions as a result!

The adrenal, the thyroid, the sex, and the pancreas glands are certainly organs in their own right, with specific tasks assigned to them. Yet it is believed that it is due to the effects of certain hormones from the pituitary that they begin functioning when the need arises.

Adrenals for Defense

The adrenal gland is usually referred to in the plural because there are two of them, located near the kidneys. They weigh a mere five grammes, too small a weight to be described in traditional weights and measures. Yet they secrete nearly thirty different chemicals; so great in power and potency that they are thought to be effective against 100 known diseases; so small in quantity that the life-long output of the glands could be stored in the hollow of a bad tooth!

In the centre of the neck, near the voice box, is the thyroid. This

weighs less than a tenth of an ounce. Normally, its life output of secretion is as much as will half fill a thimble. With this gland—perhaps more so than with any other—the correct quantity of secretion is of paramount importance, as can be dramatically demonstrated.

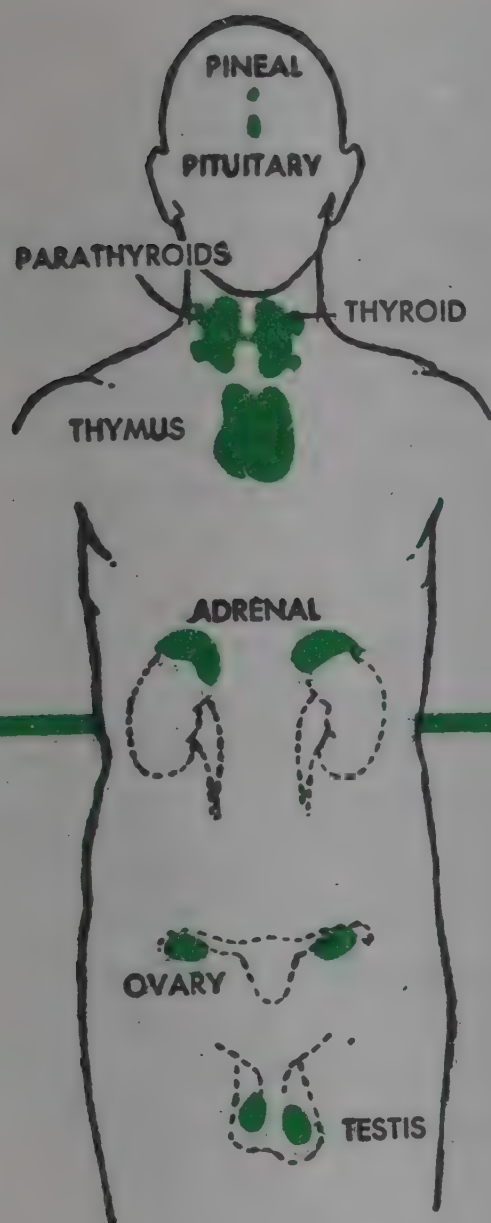
Over-production by the thyroid gland in the person so affected, will cause the heart to palpitate, make breathing difficult, and cause eye balls to protrude. These can become so severe that the sufferer can neither swallow nor breathe.

People whose faces become thick and swollen, whose skin turns rough, and who lose their hair may be suffering from Gull's disease.

Others become physically and mentally backward, their body temperature and pulse are permanently below normal. They are referred to medically as cretins. They look sub-normal, and behave so.

Both Gull's disease and so-called Cretinism are brought about by hypo—or the subnormal—secretion of thyroid hormones. So is a simple goitre, which is brought about by too little iodine.

Paradoxically toxic goitres are



caused by too much—or hyper—secretion of the thyroid gland. The over-activity of the thyroid may also be responsible for high blood pressure. This also conditions unusually great appetite, and generally the burning up of food and its change into energy at too great a speed.

Sex Glands

Much has been said of the sex glands. They often receive what may be undue prominence. So let it suffice here to state simply that there are, of course, two types—male and female. The male sex glands or testes produce the hormone testosterone. This chemical, it has been found, has more than the obvious function: it helps to absorb protein. It also is thought

to make elderly people feel better, and helps to stop bleeding in the uterus.

This brings us to the female sex glands, situated in the lower abdomen, and producing two distinct hormones—estrogen and progesterone. The first is the underlying stimulus for the production each month of an egg cell. As a result of the second hormone, progesterone, the womb prepares for the possibility of the start of a new life.

Insulin and Diabetes

With the ever-wider spreading of medical knowledge there are few who do not know about insulin, and its connection with the malady known as diabetes. The hormone insulin is produced by the pancreas. This gland secretes the hormone into the duodenum as well as into the bloodstream. Insulin affects the sugar balance of the body, upon which depends our general well-being. Insulin neutralizes body sugar. Too little of the substance, therefore, is the cause of sugar diabetes. Too much of it, or hypersecretion brings about what is known as insulin shock, various stages of which show themselves in

the form of irritability, weariness, hunger, and, finally convulsion, coma and death—if the sugar balance is not restored in time.

The purpose of all glands is to produce hormones which, in turn, stimulate the life processes. They do it, however, in different ways. Some secrete hormones externally. Among these are the salivary glands that cause our mouths to “water” at the sight of food. We call them exocrine glands.

The endocrine or ductless glands, among them the thyroid, secrete internally, directly into the bloodstream. There are others that secrete externally and also into the blood, such as the sex glands and the pancreas.

Glands, as we have learned, have their individual functions. They also can and do work as part of a wonderful team. Thus the adrenals not only help in regulating the salt and water-electrolyte body balance, they also create hormones similar to these produced by the “specialists” in the field, the male and female sex glands. Adrenalin behaviour, if irregular, may cause sexual over-activity, tumours, virilism, fatigue, nervousness, and low blood pressure. ***

One of the requests that the doctor most frequently refuses is for a tonic. Nevertheless, a large number of tonics are bought each week by the general public, taken regularly and usually thought to do some good. Why then, should doctors be reluctant to prescribe these preparations?

A sense of well-being is the essence of good health. When things go badly, or if we are over-tired, or recovering from an illness, however trivial, or fighting a perpetual battle with aches and pains, we invariably feel run down. Under these circumstances, it often seems that if we could only draw on some magical source of energy, all would be well again. The pick-me-up that has become an accepted and respectable tradition is "the tonic."

Unfortunately, many of

the feelings that prompt the desire for a tonic are identical with those of the minor degrees of ill health. Someone who is always tired may be trying to crowd too much activity into each day. On the other hand, one of the possible causes for such fatigue may be anæmia. It is true that the commonest form of anæmia is due to a deficiency of iron in the diet. An iron tonic may seem a step in the right direction towards curing the condition. Unfortunately, the iron in the tonic is unlikely to be sufficient to balance the dietary deficiency quickly. The treatment of this type of anæmia can only be satisfactory when the right sort of iron is given in an adequate dose.

The first and probably the most important thing to remember about any tonic is that it must not be regarded

as a cure for a multitude of vague symptoms. Generally we do not bubble over with good health each day. But persistent malaise and fatigue can be an early sign of sickness. The illness may turn out to be trivial. Within a day or so, perhaps, the characteristic signs of a respiratory infection appear. But many of the more chronic conditions are very insidious in their onset. It can be weeks or months before something else definite develops that makes us consult the doctor. Much unnecessary ill health and anxiety can be avoided by seeking your doctor's advice for any persistent symptom. Self-medication has its limits.

Early Sign

The second thing to remember about a tonic is the speed with which it acts. If a tonic

CAN I HAVE A TONIC?

The idea of a tonic is a hangover from the days when medicine was a mixture of witchcraft and common sense.

by A DOCTOR

is going to do any good, it is likely to do so fairly quickly—within a matter of days. To persevere with a “bottle” for weeks in the hope of combating a constant feeling of being below par, is foolish. There can be no alternative to getting to the root of the trouble and correcting it.

Not a Substitute

Tonics are often felt to be an essential part of convalescent care. What we are really asking for is something that will speed our return to

normal health. Nature cannot usually be hurried in this way. *There may be a place for a tonic under some circumstances, but the bottle of liquid must not be used as a substitute for all the things the convalescent needs to assist his recovery—fresh air, adequate rest, and a well-balanced diet.* Illness is always a debilitating process. The body needs lots of protein foods (eggs, milk, and cheese) to replace the tissues lost or broken down during sickness. *No tonic, however good, will provide these.*

What do tonics usually contain? They are often made up of a “little bit of everything.” This is the doctor’s main concern against their indiscriminate use. They may have a stimulating drug mixed in with a selection of those vitamins and minerals that the body needs daily. Unfortunately, should a real deficiency of any of these substances exist, the quantity present in the tonic is unlikely to be enough to correct it. Some tonics may act as sedatives and yet others are “bitters”—something that is claimed to stimulate the appetite.

A tonic is expected to do certain things: on the one hand, we want it to restore us to good health; on the other we want it to protect us from illness and the weather. The idea of a tonic is a hangover from the days when medicine was a mixture of witchcraft and common sense. There are occasions when a tonic is appropriate, but experience has proved that if one feels in need of a tonic, there is likely to be something amiss either mentally or physically. Once this can be identified, specific treatment can usually be offered.

But generally, the remedy is to make wise use of nature’s remedies—vigorous exercise, fresh air, pure water, and a sensible diet liberally enriched with fruit and saladings. ***



Treating A Sick Liver

by CLIFFORD R. ANDERSON, M.D.

LITTLE Sammy Jones was acutely ill. For several days he had been suffering from a moderately high fever, and at times he had severe attacks of nausea and vomiting. His skin had lost its normal colour. It had turned a strange yellow, and the whites of his eyes were almost orange in colour. He had a bad headache, and his tongue was dry and parched. This condition had been going on for about a week. It did not start suddenly, rather it came on somewhat gradually. But every day he seemed to be a little worse. He had lost all energy, and now he could do nothing but lie down and rest.

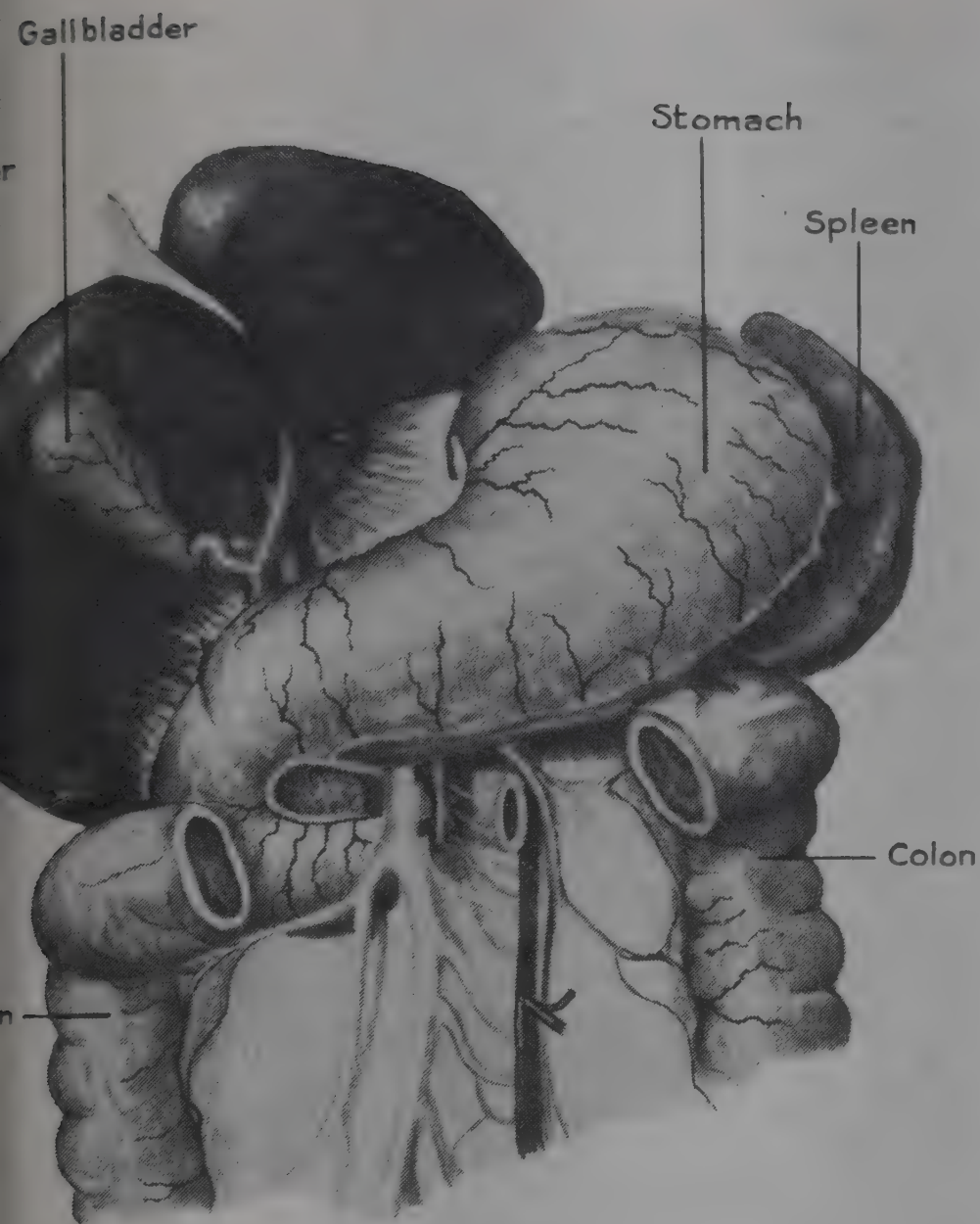
Poor little Sammy. He was sick with what modern doctors call infectious hepatitis. Older doctors used to call it jaundice. There is nothing new about the disease. From the very earliest times it has afflicted the race. But today, for some strange reason it seems to be somewhat more common. Infectious hepatitis is not a disease we can neglect, for anything that attacks the liver can have serious consequences on the rest of the body.

The reason for this is that the liver is the largest gland, and one of the most important organs in the whole body. It has many functions, all of which play their part in maintaining our general health. Naturally when the liver is sick all these functions are interfered with, for there is no other organ that can ever take over the functions of this great chemical laboratory of the body, this organ we call the liver. Just the

mere mention of some of these functions quickly reveals how dependent we are on this remarkable organ.

For instance, let us consider the question of digestion. Most of the foods we eat can be classified in one of three different classes or groups. These groups are known as proteins, fats, and carbohydrates (or sugars and starches). In each of these groups the liver plays a most important part. Just consider the group we call protein. These proteins form the building materials of the body. All the myriads of cells are built of this remarkable material. All the blood cells are composed of protein. In addition, much of the fluid part of the blood is also made up of liquid protein, which is on its way out to the tissues.

There are many different forms of protein in the body. They are all very complex in their particular structure, for they each have their own special function to perform. Most of the protein in our bodies is supplied from the foods we eat. But before these proteins can be used for the construction of new cells and other tissues, they must first be broken down into their simplest forms. This is necessary before they can be reconstructed again according to the type of protein that the body may require. Much of this reconstruction of protein takes place in the liver. We could not live very long unless these complex chemical reactions are constantly carried on within our bodies. We must remember that there is nothing static in the body. Our



The liver is the largest gland of the human body. It has many functions, all of which play their part in maintaining our general health.

the liver. Once the glucose reaches the liver its chemical structure is changed again into a special form of sugar known as glycogen. This glucose is then stored there in the liver until it is needed for energy. Then whenever the muscles, which are the engines in our bodies, need a fresh supply of fuel to keep them working well, the liver quickly changes the glycogen back into glucose. This glucose is then carried by the blood stream out to the muscles wherever it is needed. Once there it passes quickly through the membranes of the muscle cells, providing energy to keep the muscles working. In all of this the liver is a most important organ.

tissues are constantly breaking down and wearing out. These broken down tissues must be replaced or we would soon cease to exist. Also, a fresh supply of building materials must always be kept in store to meet any emergencies that might arise. Much of this storage takes place within the liver.

Fuel for the Engine

But protein metabolism is only one of the many remarkable functions of the liver. Like any other engine, this wonderful machine we call the human body also needs fuel to provide energy for work. This energy comes largely from the carbohydrates (which are the sugars and starches that we take in our food). To be absorbed these carbohydrates must first of all be reduced to glucose, a very simple form of sugar. This chemical reaction takes place in the stomach and small bowel. The glucose is then readily absorbed through the mucous membrane that lines the inside of the small bowel. From there it passes into some of the small blood vessels, through which it travels to

When Fats Are Dangerous

But this is only the beginning of the story. There are many more functions of the liver—functions that are just as essential to life as those we have just mentioned. Take the question of fat metabolism. It is essential for us to have some fats in our foods. Without them we could scarcely live. For this reason we have been given an adequate supply of natural fats in nearly all of the foods that we eat. When we speak of natural foods we mean those that grow in the earth, such as grains, herbs, vegetables and fruits. These are the natural diet of man. If we ate nothing but foods of vegetable origin we would probably never have any hardening of the arteries and other diseases so common today. It is the excessive use of fats, especially those of animal origin, such as butter, lard, bacon fat, and all the other common sources of fat in use today that carry the greatest danger to our arteries. Excessive amounts of fat may also play some part in producing the high blood pressure and even cancer that are so common today. These fats are often used in large quantities in pastries and bakery goods, as well as in ice cream products and most of the rich desserts that are so sought after today. Such foods, if taken in small quantities, may not be too harmful.

But when they are used to excess they are likely to cause serious trouble with our arteries and our vital organs.

Large quantities of fat place a heavy responsibility upon the liver. For so often these fatty foods are fried, and frying is often dangerous to the body. This is the reason: Whenever fat is heated much above its normal melting point some of it is changed into several entirely different substances which are almost impossible for the body to digest. That is why people who use a lot of fried foods tend to suffer from indigestion. These breakdown products that are found in your frying pan are often poisonous to the body, and the liver has to work hard to overcome the poisonous effect upon the system. In fact the liver probably treats them just like it treats any other poison, for it is part of the liver's responsibility to protect the body from any poisonous substances that may find their way in through our foods or by any other means.

And while we are speaking of fats, perhaps we should mention a word about another important function of the liver, which is the production of cholesterol. This is a special substance that is often misunderstood today. While it is true that too much cholesterol in the blood stream might mean that a person may eventually suffer from hardening of the arteries, yet it is equally true that without a certain amount of cholesterol we could not even live. For cholesterol is the basis of some of our most important hormones. And in addition, cholesterol is essential to the life of every cell in the body. It is only when we take too much fat in our foods that perhaps the liver is induced to produce more cholesterol than the body needs. However, of this we are still far from certain, for there is much research that has yet to be done before we will know all we would like to know about this remarkable substance.

What Causes Jaundice

All of this points up the fact that the liver is one of our most vital organs, and when it is sick the effect will be seen and felt all over the body. For instance, one of the functions of the liver is to form bile. This bile is a thick, yellowish brown liquid which contains various pigments and salts, and other substances. These substances help in the digestion of our foods, and they also aid in keeping the bowels functioning normally. When the liver is sick this bile may be prevented from finding its way down into the small bowel.

When the bile does not flow away from the liver as it normally should, it backs up and fills all tiny

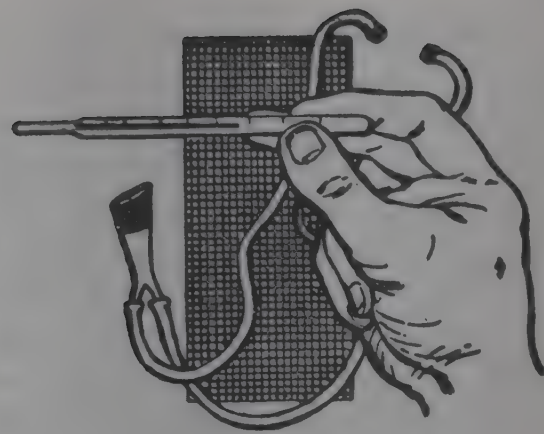
channels and spaces in the liver. The liver cells then become saturated with bile, but they still continue to produce more. The bile then goes in the reverse direction. It enters the blood stream and from there it is carried all over the body. This is usually what produces the condition known as jaundice. It is always a very serious condition. Sometimes it results from hepatitis, or inflammation of the liver. At other times it may arise from other causes.

But whatever the cause, the presence of bile out in the tissues means trouble for the body as a whole. The yellow staining of the whites of the eyes and skin is due to the presence of bile. Often the skin may become intensely itchy, and the patient may have long scratch marks all over him where he has scratched himself vigorously. Some patients have so much bile in circulation that it even fills the eyeballs, so that everything they look at appears to be yellow. But most cases of hepatitis are not nearly so severe.

Hepatitis is always a serious disease. In most cases there is pain and tenderness over the liver, and sometimes in other parts of the abdomen. The whole digestive system is likely to be out of balance for some time, for once the liver is injured it often takes a long time to heal. The most important treatment is *rest in bed*. This should continue until the jaundice has disappeared, for activity often makes the condition worse. The case of *local hot packs* over the abdomen, such as moist, hot towels, will often help to relieve the pain in the liver. In some cases it may be wise for the patient to have some medicine to quiet the nerves. This usually helps to relieve the nausea and vomiting. Frequent small meals are best for any type of liver disease. These meals should include such easily digested foods as skim milk, plain bread and cereals. All rich foods, especially those that contain large amounts of fats, should be avoided. If there is trouble with constipation, it may be well to use some simple saline laxative. And because hepatitis is an infectious disease in most cases, it is well to take every precaution to see that it does not spread to any other members of the family. It is wise to *wash your hands thoroughly* after attending any patient with hepatitis. A cake of soap is often your best protection, especially before meals.

Finally, do not become discouraged if the process of recovery seems to be slow. Rest is still the best form of treatment, and given enough time, the liver will usually make a fairly good recovery, for the body itself has been endowed with its own wonderful powers of recuperation, if we will only give nature a chance. We can do this best by taking plenty of rest and by living in harmony with the laws of nature and of God.

The Doctor Advises



Splitting Nails

My nails peel and split, sometimes in three layers. What can I do?

The fingernails, like the hair and the skin, may reflect the general condition of the body. As the body ages, the hair may lose its lustre, the skin becomes dry and wrinkled, and the nails become brittle or separate into layers, as in your case. This result is not always owing to old age alone, for there may be conditions present that could be remedied.

There may not be a simple cause of symptoms in your case, but in general you should do everything in your power to have a healthy body by eating the proper foods and getting proper rest. It is all the more important to have a balanced diet if you have to be careful of your calories. Be sure to include in your diet fresh fruits and vegetables.

A sluggish thyroid might contribute to your nail problems. Anæmia also could be a factor in that blood supply to the nails would be decreased. Or it may be a matter of poor circulation to the extremities, particularly to your fingers, that causes this condition. A blood test for anæmia and one for thyroid function may give a clue.

Certain nail polishes may be harmful to the nails. If your nails are soft, this condition could mean a lack of calcium, and it may take longer than two months to get any beneficial results. If you do not get enough calcium in your diet, taking calcium tablets might help.

Pimples

I am sixteen years old and I am very concerned about acne. Would you please provide some information about care and treatment?

Acne is an inflammatory disease of the sebaceous glands of the skin which produces obstruction of the ducts of these glands. Approximately eighty-five per cent of pre-adolescent and adolescent children exhibit some manifestations of plugging of the sebaceous glands. Dietary, emo-

tional, bacteria, and endocrine (internal) secretions are contributory; a genetic factor may also be involved.

The role of dietary factors is shown by the regularity with which flare-ups occur in many children after eating specific foods. The main dietary restrictions upon which most dermatologists agree are chocolate, nuts, seafood, and cola drinks. Although the glands are not under direct control of the nervous system, stress does appear to cause flare-ups. Mechanical factors such as squeezing and occlusive (blocking) cosmetics may contribute to the acne process.

Treatment is designed to improve the cosmetic appearance by limiting the development of lesions and limiting scarring. An acceptable plan includes: (1) careful cleansing with soap and water twice daily—there are several special soaps containing sulphur and salicylic acid which may be more effective than plain soap; (2) lotions containing sulphur and salicylic acid to be applied after washing; and (3) occasionally, ultraviolet light. In selected cases, physicians may prescribe antibiotics for acne.

You should consult your family physician or a dermatologist for specific advice as to care and medications (if any).

Why the Skin Has Many Colours

Skin colour ranges from white (pinkish yellow) to black. Each race has a basic skin colour, but within racial groups there are infinite variations—shading among whites goes from the fair skin typical of Scandinavians, to the dark, almost swarthy skin of Mediterranean peoples. Among Negroes, skin tones range from light tan to inky, blue-black. Colour variations among the yellow races are less marked, but nevertheless exist. What accounts for these differences?

All normal skin contains at least three different types of colouring matter, or pigments—melanin, carotene and hæmoglobin. Negroes don't have a special brown pigment, nor do Chinese have a yellow pigment, or Whites a white one. We all have the same three pigments. Differences in skin colour are mainly the result of how much

of each pigment is present, and how they are all blended together. Heredity dictates how it will be done.

Of all the pigments, melanin is the most important one. It's the brownish pigment that gives freckles and moles their colour, and makes skin tan after exposure to the sun. When large amounts of melanin are present, the skin is dark. Less of a concentration may produce a yellow or orange-red colour. Negroes have more of it than Orientals; dark-skinned brunettes have more of melanin than fair-skinned blondes or redheads.

Melanin is produced by special cells in your skin; and there are more than 60,000 of them in each square inch of adult skin. Curiously enough, there are no more of these cells in darkly pigmented people. The cells are simply larger and work harder at producing melanin and colouring the skin.

People with little or no melanin are called albinos, from the Latin word meaning white. Actually, their skin contains the melanin-producing cells, but they can't produce the pigment. The result: their skin is white or very pale pink and their hair is white. This lack of pigment is a hereditary trait that may effect the whole skin surface or parts of it. Another skin condition, marked by the formation of light-coloured patches and occurring in youth or adult life, is called vitiligo or "piebald skin."

There are many conditions or diseases that can affect skin colour. Foods, chemicals, heat or friction can produce temporary changes in basic skin colour. Various diseases including syphilis, malaria and diabetes can affect the melanin-producing cells.

It is well to remember that the skin, whatever its colour, is a highly complicated organ with vital functions to perform. If skin problems arise or if skin colour changes abnormally, see your physician, the man best qualified to give you the professional help you need.

Birth Control Pills

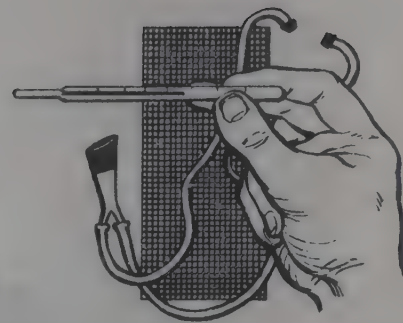
What is the effect of birth control pills on the body?

With the increased number of women taking birth control pills, a large number of questions are being asked about their relative dangers and safety. We will attempt to answer many of these questions in a composite manner.

When birth control pills were first used, the recommended dosage was much larger than that used today, and many of the side reactions now being reported are a result of that higher dosage.

Most birth control pills used at present contain a combination of progesterone and estrogen in amounts about twice what is normally produced in the adult female during a regular menstrual cycle but about one tenth the amount produced during a normal pregnancy. The mechanism of action of the pill is that a woman fools her body into acting as if she is pregnant—and

The Doctor Advises



she doesn't get pregnant for the same reason that she can't conceive when she is already pregnant. Consequently, many of the side reactions are the same as the symptoms of pregnancy, for example, nausea and vomiting, retention of fluid with weight gain, and vascular disturbances.

Normally a woman is two or three pounds heavier the week before a menstrual period than she is the week after. The weight gain is greater for some women when on the pill. It is true that most women who have an increased tendency to blood clotting and who are on the pill may be advised to use an alternate method.

The large majority of women of childbearing age who are on the small dosage of the pill and who eat an adequate breakfast and a light supper and drink plenty of water (six to eight glasses) a day have very little trouble while using this very effective contraceptive. Extensive studies have failed to show a relationship between the pill and cancer. Most women on the pill are on a stricter programme of medical supervision than are the non-users.

Superfluous Hair

My sisters and I are having hair growing on our upper lip. Is there any safe method of getting rid of this superfluous hair?

The condition of superfluous hair such as you describe is known as hirsutism or hypertrichosis. It is usually an inherited tendency, but it can be an evidence of imbalance in thyroid, pituitary, superarenal, or sex-gland activity, or a result of tumours of these glands.

Since all the girls of your family are having this problem, it appears to be an inherited tendency. However, if you have access to a competent dermatologist (a specialist in skin disorders), it would be wise to consult him in order to rule out any glandular involvement.

If the results are negative, there are several products on the market for removing this hair. They are called depilatories. Consult a chemist for suggestions of a good brand. These may be used safely if the directions are followed carefully. They may be somewhat irritating to the skin.

The only completely safe way to remove unwanted hair is to have a registered electrologist remove it by the use of an electric needle. This service is available in most large cities.

Masturbation

I have been masturbating since I was sixteen years of age. I am now twenty-one. Is it harmful? Will it affect fertility and brain work?

In the first place, masturbation requires a considerable expenditure of nervous energy. The act of masturbation is followed by a deep letdown experience during which the person is "stupid" because his nervous energy is now in short supply. This stupor-like condition makes him less than normally able to perform his usual activities and causes him to be somewhat depressed.

Second, the excessive expenditure of vital energy in masturbation tends to reduce a person's general resistance to disease. The effect is similar to that of becoming excessively tired or of losing sleep. One's good health depends on having an abundance of vital energy in reserve. Masturbation tends to deplete this reserve and, therefore, makes the person more than normally susceptible to illness.

Third, masturbation has an unfavourable effect on the personality. Masturbation usually is practised in secret, and the person feels somewhat humiliated because he does not want others to know of his having used this means of obtaining personal pleasure. We might say that it is a substitute for the genuine pleasure a person should experience, once he is married, from the exercise of legitimate husband-and-wife relationships. It thus makes a person less able to adjust satisfactorily in normal social contacts and social activities. It handicaps him in his own self-appraisal and in the fortitude with which he looks forward to ideal marriage and establishing his home.

You asked, Can masturbation affect a man's fertility? No, I do not know of any evidence that masturbation makes a man less able to become a father except as it may reduce his general vitality, as mentioned above.

By reducing one's vitality and resistance to disease, masturbation can make a person more susceptible to life-shortening illnesses.

Another of your questions was, Can masturbation affect a man's "brain work"? Yes, masturbation has the effect of making a person less alert. Especially when practised repeatedly, it reduces mental efficiency.

Overcoming the habit of masturbation is not easy. The sexual reflexes when once activated in a person's life experience are powerful reflexes that clamour insistently for expression. It takes more determination to stifle the persistent desire. Not just determination but a quite completely different pattern of life is necessary. I suggest the following:

1. Avoid periods of solitude.
2. Keep busy with activities that demand the total attention. Plan deliberately to become physically tired

by the end of the day so that sleep comes quickly and is deep.

3. Rise early and promptly in the morning and engage in active physical exercise.

4. Avoid thoughts, daydreams, pictures, and conversations relating to matters of sex.

5. Avoid stimulating foods (highly seasoned foods and sweetbread types of meat).

6. Avoid tobacco and alcoholic drinks.

Do not expect that following such a programme will enable you to discontinue the habit of masturbation once and for all. There will probably be times when you will lapse back into the old habit. Do not condone this in yourself—neither let it cause you to become discouraged. Consider that you are making progress if it has been longer this time than previously since the habit overtook you. When you experience the urge to practise masturbation, deliberately try to postpone the urge second by second. Say to yourself, I think I can hold out at least another five seconds. Then try for a second period of five seconds. Then say, "If I can hold out a few more seconds, the urge may weaken." By thus delaying your response to the urge, a few seconds at a time, the desire will eventually weaken and you will have gained a victory.

Tonsils and Adenoids

How important are the tonsils and adenoids? They are often removed, and apparently people get along well without them.

The tonsils and adenoids are an important part of the defense mechanism of the body, and they should not be removed indiscriminately. They belong to the lymphatic system, a system of lymphoid tissue that includes the lymph nodes. Tonsils and adenoids are important factors in the fight against infection caused by germs and viruses.

Strategically located, the tonsils—one on each side of the throat at the base of the tongue—and the adenoids—behind the soft palate in the upper part of the pharynx—serve as a testing laboratory for the food, water, and air that are taken into the body. When germs or viruses enter the cells of the crypts (lodging places) of the tonsils and adenoids, these protective organs react by producing antibodies against the germs or viruses. The antibodies are taken up by the lymphatic system and the blood stream and circulated through the body to protect against the invading germ or virus or at least to lessen its activity.

There are valid reasons for removing the tonsils for improving the health. Enlarged, diseased tonsils and adenoids are often present at the same time, especially in childhood. Because enlarged tonsils and adenoids may obstruct the child's breathing and limit intake of oxygen, his nutrition, growth, and mental activity may be slowed.

Hearing may be interfered with. Poor hearing often is the cause of seeming inattention and mental slowness.

It is not long after the tonsils and adenoids have been removed that beneficial results often are seen. The child's eating and sleeping habits improve. He breathes normally, and he begins to make progress in school. If his growth has been stunted, it is soon noted that his height begins to increase at the normal rate.

Removal of the tonsils and adenoids should not be taken lightly in any case, because their absence reduces resistance to virul infections. This fact was emphasized in a special study in which was measured the secretary poliomyelitis-virus antibody levels in the nasal pharynx of forty children aged three to eleven who had been immunized with polio vaccine. Later, when the tonsils and adenoids of these children were removed for valid reasons, the poliomyelitis-virus antibody levels were measured again, and they showed a marked decrease. Obviously, when a decision is to be made for or against removal of the tonsils and adenoids it should be arrived at only after competent counsel and careful consideration.

Obstruction of the auditory (ear) canal by enlarged adenoids may cause repeated attacks of earache and even acute middle-ear infection. The tonsils may harbour pockets of low-grade infection, causing frequent attacks of fever, sore throat, and swollen neck glands. A chronic focus of infection may be in these pockets, causing arthritis and neuritis.

If the tonsils and adenoids become so diseased by infection that they no longer defend the body against germs and viruses, and instead become centres of infection and a menace to the body, they should be removed. But if the tonsils and adenoids become healthy again after a viral bacterial infection has left the body, their removal is not indicated.

Halitosis

What can a person do for bad breath?

First, try to find the cause of the offensive breath and then remove it. The common cause of bad breath is failure to keep the mouth and teeth clean.

Diseases of the gums and teeth can be responsible for offensive breath. The dentist should be consulted for the remedy of such.

Offensive odours may originate in the lungs and be carried with the breath as it is exhaled. The odour of tobacco is one of these, especially in persons who inhale. The body eliminates certain volatile substances through the lungs. This accounts for the persisting odour of liquor and for the odour of garlic and onions long after these items have been ingested.

Many persons have bad breath each time they become emotionally distraught. This operates by a reflex interference with the flow of saliva or, possibly, by causing indigestion.

Diabetes

What are the first symptoms of diabetes?

In persons above forty years of age there may be no "first symptoms" of diabetes until one of the more serious complications develops. These include associated disease of the kidney, associated hardening of the arteries (arteriosclerosis), diminution of vision due to inflammation of the retinas of the eyes, a tendency to repeated crops of boils and carbuncles, and unconsciousness associated with diabetic coma. After diabetics in an older person has been discovered, it may be recalled that for some time he had been losing strength and had been susceptible to drowsiness, especially after meals.

In children and young adults, certain telltale symptoms usually appear relatively early in the course of the disease. Most noticeable is the production of three or four times the normal amount of urine. In the case of a young child, bed-wetting should raise suspicion of diabetes. Accompanying the production of large amounts of urine there will be a definite increase in thirst with the need to drink much more water than usual. There is an associated increase in appetite, but this is strangely associated with a loss of weight and of strength. It is not unusual for a young adult with beginning diabetes to lose as much as thirty pounds in weight within a few weeks.

Many cases of diabetes are discovered incidentally in the course of a routine physical examination in which it is noticed that the urine contains glucose (a form of sugar). Because of the usual insidious onset of diabetes and because the treatment of this serious disease is more successful the earlier it is begun, it is important for everyone to have a physical checkup at least once a year or to ask the physician to make a test whenever one of the above symptoms is noted.

Oily Skin

I have too much oil on my skin. My skin is always shiny. Is there anything I can do for this?

If you have too much oil in your skin you have a greasy complexion. It is interesting to know what causes this oiliness. There are two important sets of glands in skin oil. One set is only partly responsible for the excess oil. It deals with perspiration. The second set of glands is directly responsible for the skin oil.

Oil glands are found only where there are hairs. Even tiny white baby hairs have oil glands. The palms and soles do not have oil glands, because there are no hairs on them. On the nose and the blush area of the cheeks the oil sacs are large. The wide openings around the tiny invisible hairs from which the oil exudes are the cause of much dismay among women with enlarged pores.

Under normal conditions of health the oil glands give off just enough oil to grease the skin and the hair lightly. If conditions are not normal, too much oil comes out. It gives a shine to the skin and an unwelcome feeling of greasiness. There are periods in life when extra activity is to be expected. Adolescence is a period

of such extra activity. It is the time when all the secreting glands are busy, and the oil sacs share in the activity.

It is normal during adolescence to have oiliness of complexion and scalp. It precedes pimples and blackheads. Everyone with pimples and blackheads has an oily complexion and scalp. If the oil dries on the scalp it is called dry dandruff.

Removing Earwax

What can I do to remove wax in my ear canal? One of my ears feels as though it were closed. Even my voice sounds strange. I am very uncomfortable.

It is quite common for wax to become impacted in the ear canal. If proper care is used in removing it, no permanent damage will occur.

To remove the wax you will need two pieces of simple equipment and a member of the family to help you. You will need a simple syringe with a soft rubber tip (such as can be purchased at a chemist shop) and a small basin. Draw warm water (not hot) into the syringe. Then, while holding the basin under the ear to catch the water that flows out, direct the tip of the syringe toward the upper part of the ear canal and press the bulb. Be gentle. A stream of water thus flows into and out of the ear canal and should wash out accumulated wax.

If the wax is so hard that plain water does not flush it out, add baking soda to the warm water—one teaspoonful to the glass of water—and use this in the syringe. If necessary, allow a fifteen minute rest period after syringing for two minutes and repeat. In a very obstinate case, it is well to drop a few drops of hydrogen peroxide or of glycerine into the ear canal (with the

head tilted in the opposite direction) and allow this to soften the wax before using the syringe and water.

If results are poor or the procedure painful, consult your doctor.

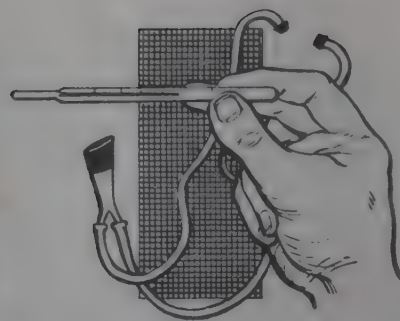
Boils

Are boils a type of septicæmia? If not, can they turn into this if you have many of them at one time?

Boils are abscesses located inside the skin and are caused by bacteria that have gained entrance and are multiplying there. A specialized membrane (called pyogenic membrane) forms around the abscess and prevents the bacteria from getting into the tiny blood vessels and being carried to all parts of the body. Normally there are no bacteria in the blood.

Septicæmia, on the other hand, is infection of the blood itself; bacteria are living and multiplying there thus are called to all the body. This is a very serious condition, because overwhelming infection can occur in any organ or tissue. Boils are not a type of septicæmia. If they are properly cared for, so that the protective membrane is not broken, they will not release bacteria into the blood.

The Doctor Advises



But if they are squeezed or pressed so that membrane is broken, septicæmia may result.

The presence of many boils at the same time is usually an indication of poor resistance—often due to excessive sugar intake. Elimination for a while of all refined sugar, large use of fruits and vegetables, plenty of water (one glass for every fifteen pounds you weigh, sunlight on the involved area, thorough cleanliness, and balanced exercise and rest will build you up and will help prevent boils and speed up their healing.

Cavities

Could you recommend a diet that would prevent cavities from forming in a child's teeth?

That is a difficult question, for the simple reason that we do not know all the factors involved. Dental cavities have been a mystery for generations. Many of our modern soft foods are high in sugar. They seem to predispose toward the formation of dental decay. A well-balanced diet containing milk, fruits, vegetables and whole grains is certainly the best for any growing child. It is well to avoid the frequent use of sweets, soft drinks, and chewing gum. If these are used the child should brush his teeth soon after so that food particles are removed. Most dentists and doctors believe a child should be given a diet low in sugar and sweets, and high in calcium and body-building foods.

Anaemia

My fourteen-year-old daughter and I just returned from the doctor. He told us she has anaemia, and he prescribed vitamins and iron pills. He said he thought she would be all right. I had the idea that anaemia occurred only in older people. Why should my daughter have it at her age? Do you think it is serious?

One form of anaemia occurs commonly in the early teens, particularly in girls. There are several reasons why this is so.

I assume that your daughter has entered young womanhood and perhaps has been menstruating for several months. The loss of blood each month that is a normal part of menstruation places a greater demand than usual on the body's blood-forming organs. If as much new blood is not produced each month as is lost in menstruation, a form of anaemia results.

Iron is an important part of the hæmoglobin molecule contained in the blood. Your doctor prescribed iron pills to assure an adequate supply of this element for the production of hæmoglobin.

Some teenage girls are careless of their diet. Because many of them have a fear of gaining weight, they limit their diet. In so doing, they have a temptation to cut down on wholesome food rather than on snacks and sweets.

Perhaps your daughter has become careless in following the rules of health that require adequate exercise each day, at least eight hours' sleep every night, abundant wholesome food regularly, and a consistent programme of personal hygiene.

Help your daughter find ways of improving her general physical fitness in addition to using the doctor's prescription, and I think her anæmia will soon disappear.

Rheumatic Fever

Do people ever recover completely from rheumatic fever? I had it when I was nine years of age. I am now twenty-eight years old and have no sign of heart trouble. My mother keeps telling me to take it easy and that I will get a bad heart if I don't. Is it possible to develop heart trouble in later years?

Yes, it is possible. Many persons have gone through their younger adult years without any difficulty, some even having several children. Then in the middle thirties or forties trouble has developed. The trouble is usually due to a narrowing of the mitral valve. This delays circulation and puts a strain on the right side of the heart and the lungs, a condition known as mitral stenosis. The aortic valve may also be involved. This places a severe strain on the left side of the heart. If you have had rheumatic fever and have escaped all of this, you can be most grateful. Not everyone is so fortunate. However, it is well to watch against infections of the nose and throat, for even at your age it is possible to have a recurrence of the rheumatic fever and perhaps other more serious complications, such as subacute bacterial endocarditis. Certainly you should do all you can to avoid any strain upon the heart, for you may have some damage there even though at present you may not be aware of it.

Communicable Diseases

Please give me some tips on recognizing communicable diseases.

A typical case of measles usually begins with three to four days of hacking cough, watering eyes with redness, and general malaise. Then the rash appears, which in a definite case of measles cannot be missed.

German measles is not seen in any marked form. The rash is lighter and less prominent than that of regular measles, and the early symptoms are mild, occasionally with a slight sore throat and perhaps slight fever.

Chicken-pox, before the pox is prominent or even visible, is ushered in with a fever, stomach-ache, sometimes nausea, occasionally mild sore throat.

Whooping cough usually begins with what appears to be a cold, which hangs on too long and ends up with the whoop that cannot be missed in a definite case.

Scarlet fever begins with a sore throat and fever, then the fine rash is seen, covering the trunk, most of the time the face, and other parts of the body.

Mumps is seldom missed, especially if both parotid glands are involved, with swelling in front of the ears and sometimes involvement of the glands beneath the jawbones. Mumps may be seen first with fever that can be up to 103°F.

Of course there can be variations of all the symptoms I have mentioned. Viral disease other than chicken-pox and measles can be accompanied by a rash. At times it is rather difficult to decide what a rash is caused by—whether communicable disease or allergy.

Do not neglect immunizations. In most places there are clinics where children can have injections without charge. These preventive measures can save much heart-ache and sickness.

Eating Between Meals

What are the harmful effects of eating between meals?

The folly of irregular eating was revealed in a practical way by a series of X-ray experiments conducted at a Washington hospital sometime ago. Here is a description of this series, directed by A. W. Truman, M.D., who was medical director of the Washington Sanitarium where the experiments were run:

Several nurses were given a simple standard meal of cream, bread and butter, cooked fruit, an egg, and a glass of barium buttermilk, making it possible to take the necessary X-ray pictures. X-ray films were made immediately after the meal and two hours, four hours, and six hours thereafter (unless the stomach emptied sooner) to determine the normal emptying time of each nurse's stomach for this simple meal. In every case the stomach was empty or nearly so within four hours.

Later the same nurses were given the same standard meal, but two hours afterward each nurse ate some additional food. The first nurse was given an ice cream cone two hours after the meal. The second nurse was given a sandwich two hours after the meal. The third nurse was given a piece of pumpkin pie and a glass of milk two hours after the meal. The fourth nurse was given a banana two hours after the meal.

The effect on the emptying time of the stomach of the additional food was such as to give facts deserving serious study and thought.

In the first case, instead of the stomach completing the work of digestion and emptying within four hours, it was labouring with food residue at six hours.

The second case—in which the previous test had demonstrated the ability of the stomach to complete its work and become empty from the standard meal—was found to have a large residue at nine hours. In other words, eating a sandwich two hours after the meal more than doubled the burden on the stomach of finishing the work of digestion.

In the third case—the simple standard meal having been digested and emptied in four hours in the previous test—the stomach contained residue food after nine hours, as in the second experiment, in which a piece of pie and a glass of milk were taken two hours after the meal.

In the fourth case, the stomach also having demonstrated its ability to complete the work of digestion of the simple meal in four hours, as in the second experiment—still contained food residue at eight hours; that is, the burden imposed on the stomach was doubled by one banana eaten between meals.

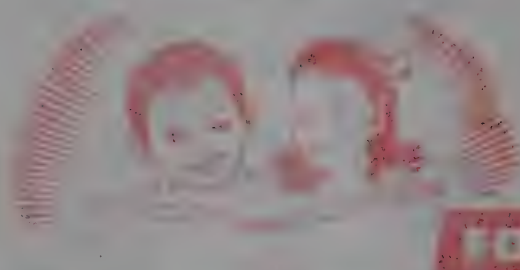
The habit of eating between meals is harmful. Any organ continually over-worked cannot function normally. When the digestive process of the stomach is delayed, it interferes with the digestive process of the duodenum. Assimilation of food is slowed and thus the general nutritive process of the body is slowed, body vitality is lowered, and disease is invited.

Sleeplessness

I have trouble getting to sleep at night. Tranquillizers, a drink of hot tea, a snack, and a warm bath—all these I have tried and they do not help.

Tranquillizers are not expected to help a person in getting to sleep. They change a person's mood but do not necessarily make him sleepy. The taking of tea has a stimulating effect, for tea contains almost as much caffeine as coffee. A drink of hot Bournvita (or other drink that do not contain caffeine) sometimes does promote sleepiness.

Learn to slow down your mental activities during the last hour or two before bedtime. Allow a "cooling off period" from the day's hustle and bustle. Cultivate a drowsy attitude. Try going to bed a little earlier than usual without thought of going to sleep just yet. Once in bed, do a little easy reading or engage in some other unstimulating pastime. Once the eyelids become heavy, let nature take its sleepy course but don't set a deadline for sleep and then worry as the deadline approaches. If you lie awake a little longer than you had expected, so what! ***



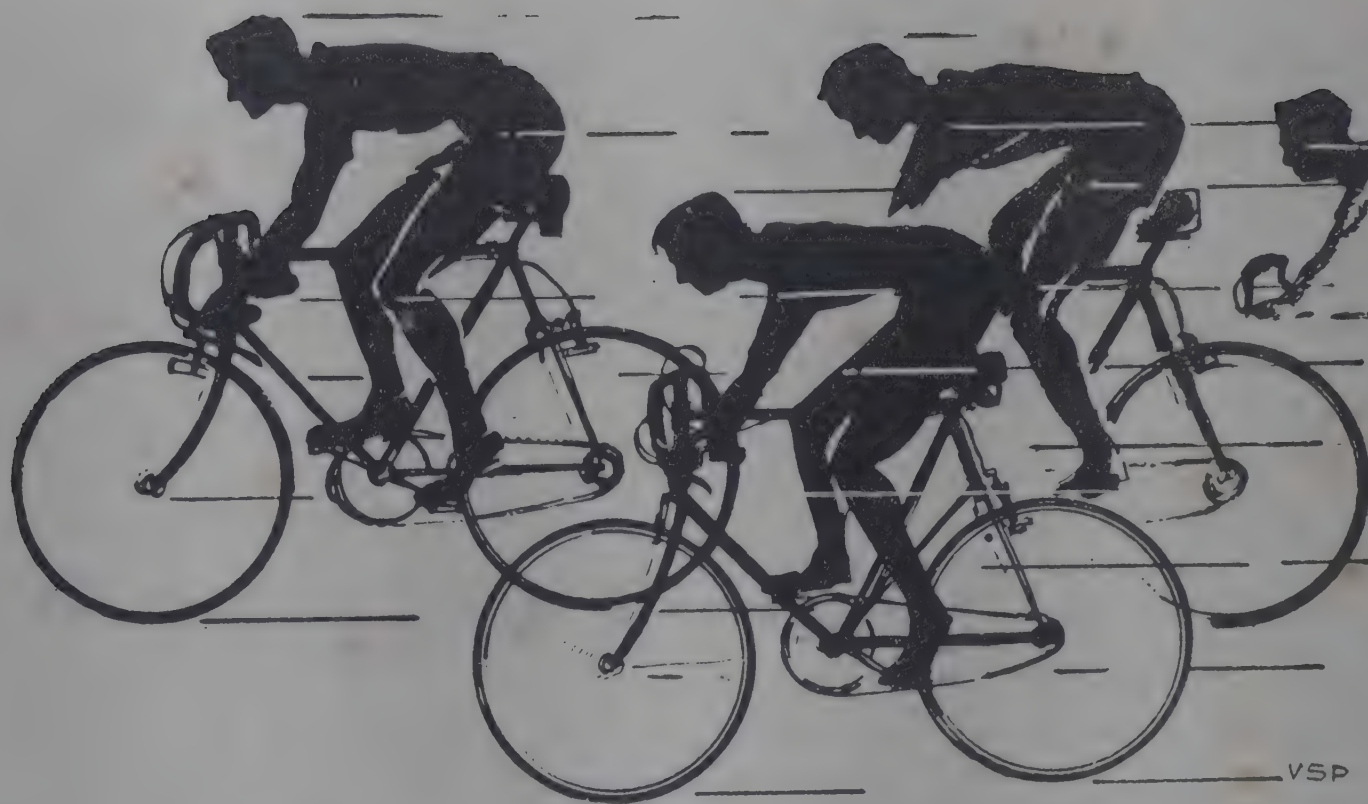
The Loose Wheel

by ELLEN E. MORRISON

SPORTS Day at school was something all the boys looked forward to, and Chellapa was no exception. This year, however, something new had been added, and his interest was more keen than ever. This new something was a cycle race, and Chellapa was especially happy, because he felt he had a good chance of winning. His cycle was only a month old, newer than any of the others known to have entered in the race.

Chellapa felt that he had the best chance of winning—until Biswas came to school one day, a week before the race, and told everyone that he had just received a new cycle for his birthday. Biswas was the envy of all the boys as they clustered about him during recess, admiring his new possession. Chellapa was in the group, but his thoughts were not happy ones. Here was serious competition for next week's race.

"I'll just have to practise riding my bike for speed every afternoon between now and the race," he thought as he walked home from school that day. "I can't depend on merely having a new bike to win the race. I guess that was a crazy idea to begin with. It isn't so much how new the bike is. How I ride it is what's going to count most." And Chellapa did practise, every afternoon. He was sure he



Soon the home stretch and the finish ribbon were in view.

could notice great improvement in his speed. Yet he knew that Biswas must be practising just as much as he was on his own new cycle, and all the other boys were preparing for the race with their older bikes. It was sure to be a close race.

When the big day came, the boys entered in the cycle race gathered together in one corner of the school playfield, giving their cycles a last-minute inspection. Perhaps Biswas was confident that his own bike was in excellent condition, being so new, because he was not looking it over carefully.

Chellapa, on the other hand, was taking no chances. It was only a half hour before time for their race, and he was looking his own bike over for anything that could possibly cause trouble.

Biswas' cycle was right next to Chellapa's. "What are you checking so closely for?" Biswas queried. "Your bike is almost as new as mine. There's nothing wrong with it."

"Maybe not," Chellapa answered, stooping down to look at the back wheel, "but it never hurts to be sure."

"You're just wasting your time," Biswas laughed, leaving his cycle to go to the tap for a drink.

Chellapa smiled to himself at how confident Biswas was, just as if he had the first prize ribbon in his hands already. He might do better to be looking over his cycle the way the rest of the boys were doing. Chellapa leaned over to look at the front wheel of his own bike. It was all right, and he was finished checking. Before he rose, however, his eyes glanced through the wheel of Biswas cycle. There was something wrong, Chellapa was sure. He looked more closely, and saw that the nut holding the axle in place was almost off. It needed tightening badly.

Chellapa gloated over the idea that something was really wrong with Biswas brand new bike after all. "Just as I thought," Chellapa mumbled to himself. "He shouldn't be too sure. It will serve him right if that wheel comes loose in the race and then he won't have any chance of winning."

Chellapa stood up and walked over to the tap. Biswas was just leaving to return to his bike. Chellapa heard him boasting to one of the other boys. "I'm not worried," he was saying. "My bike's new and really running smooth." Chellapa could not help smiling wisely as he leaned down to get a drink. Biswas surely had a surprise coming!

The other events preceding the race were almost over. Chellapa had not mentioned the loose nut on Biswas' bike. It would serve Biswas right for not being more careful. Also Biswas was Chellapa's most serious competitor for first prize. Why should he warn him of his danger? Biswas probably would not do as much for him if things were the other way around.

The two boys were side by side now, getting in line for the race. Biswas rolled his bicycle into place, and Chellapa noticed a slight wobble in the front wheel. Suddenly he realized that he couldn't let even his worst competitor enter a race with his bike in that condition, not when he could warn him ahead of time. Chellapa did not want to win the race if he had to win it that way.

"Biswas," he blurted out, "that front wheel of yours is wobbling."

"Really?" Biswas said, as if he thought Chellapa were joking. But he did push the bike back and forth to check. "Say, it really is, isn't it?" he said, surprised.

"Yes," Chellapa said, "Hadn't you better tighten it before the race?"

"There isn't much time," Biswas said, "only about three minutes." Biswas looked dismally at the wobbly wheel. "I shouldn't have been so sure that everything was all right. I'll never win with a wheel like this."

Chellapa dug a hand into his pants pocket. "Here," he said, holding a wrench out to Biswas, "hurry up, and you'll have time to tighten it before the race."

"Thanks!" Biswas exclaimed, almost grabbing the wrench from Chellapa's hand in his eagerness. He tightened the nut on the wheel quickly and handed the wrench back to Chellapa. "You're really a pal, Chellapa," he said sincerely. "I don't think many fellows would tell somebody else that something was wrong with his bike—especially when we have the two newest bikes in the race."

"Well," Chellapa smiled back, "I'm going to try just as hard as anybody to win this race. And if I get in ahead of you, I don't want it to be just because of a loose front wheel on your bike."

Biswas returned Chellapa's smile. "I see what you mean. I wouldn't want to win that way, either." The warning call had been given, and the boys lined up beside each other. "Good luck, Chellapa!" Biswas said sincerely.

"Same to you, Biswas," Chellapa answered. Then the starting whistle sounded and the race was on.

It was close all the way. Chellapa was out in front some of the time, then Biswas was. Many times the leader was Mohan Kanagaraj, on an older bike with plenty of speed. The race seemed to be among these three, who soon led the field. Chellapa was in the centre, and could see first Biswas and then Mohan out of the corners of his eyes. He was glad he had practised so much every afternoon after school. He needed every bit of speed he could muster now.

Soon the home stretch and the finish ribbon were in view. Chellapa now was trailing slightly behind. Perhaps, with one final burst of speed, he could still win. He bent low over his handlebars and pedalled with all his strength. Slowly he inched past Biswas, then past Mohan. Mohan closed in on him slightly at the finish, and Chellapa was not quite sure which of them had broken the ribbon first.

Chellapa was overjoyed when the judges announced his own name as first-prize winner, then Mohan as second, and Biswas as third. Chellapa pinned the prize ribbon proudly to his sweater and looked up into Biswas' eyes. "Congratulations!" Biswas said sincerely. "You really deserve first prize, Chellapa!" A look of understanding passed between the two boys, and Chellapa knew that Biswas really meant what he had said. ***



FOR JUNIORS

Skeleton in Your Closet

by DOROTHY AITKEN

Nalina hung up the dish towel carefully. She was unusually quiet tonight, mother thought, as she watched her take off her apron.

Suddenly Nalina asked, "What is a 'skeleton in the closet', mother? I heard you and Mrs. Thakkur talking, and she said something about Mrs. Gayen having a skeleton in her closet."

"To have a skeleton in the closet, my dear," mother said, "is to have something in your past life or the life of your family that you don't want anyone to find out about."

"Like what?" Nalina asked.

"Oh, say your grandfather spent some time in prison, or your aunt was suspected of stealing, or something like that. Something you are ashamed of and try to keep hidden from your friends."

"Could it be something that I did, Mother?" Nalina seemed anxious.

"Surely. Anything you don't want people to know about and discuss is a skeleton in your closet."

Nalina turned and walked so thoughtfully upstairs that mother wondered if something was wrong with her.

Nalina's eyes went straight to her closet door the minute she entered the room. She opened it to get out her jacket, and from the dimness within, a horrible bundle of bones seemed to peer at her.

It had all started when Nalina was seven. She had been visiting her grandmother. While dusting grandma's bureau she had spied a one rupee coin pushed away back under the handkerchief box. Grandma no doubt had forgotten it was there. She would never ask about it, Nalina decided. She slipped the one rupee coin into her apron pocket.

Looking back, Nalina decided that that was the moment the skeleton first appeared. It had bothered her some when she visited grandma's farm a few weeks later and noticed a small hand-printed card above the bureau that read, "If you'd steal a pin, you'd steal a bigger thing." For a while she was afraid grandma knew, but since grandma never said anything about it, Nalina decided it was just a coincidence.

Then there was the time she had spent some of mother's change when she went to the store. Mother had been in a hurry and hadn't counted the change when she brought it back, so it hadn't been necessary to use her made-up story about how prices had gone up.

But now Nalina could see that at that point the skeleton had definitely added several bones.

The year she was ten, Nalina and Shana, her best chum, had been quite clever at slipping gum and small sweets into their pockets as they went through the store. They had never been caught, and since the girls didn't

really need to steal, they had given it up long ago.

Nalina knew now that those petty crimes had nourished the skeleton, and as she slowly closed the closet door, she decided on a plan. No one would ever know about it unless she told. The skeleton would never get out unless she let it out. She would never again give old Mr. Skeleton anything to grow on, and with time he would surely shrivel up and go away.

But as days and weeks and months went by, that skeleton seemed to loom bigger and bigger in Nalina's mind. When she tried to pray she could see that old bony frame even with her eyes tight shut. Nalina knew it was the devil making fun of her.

And then it happened. She was older and had gone away to school to live in the hostel. Somehow it seemed that no matter how she tried she could never make her allowance reach from one payday to the next, and there were always so many things she needed.

One day as she dusted the desk in the dean's room she noticed a five-rupee note lying under a book. Nalina decided to take it. No one was around; no one would know.

She'd put it back when her allowance came next week. She was in desperate need of a pair of socks and here was just what she needed.

For a moment the skeleton flashed across her mind's eye. Bosh! thought Nalina. What a silly thing to think about! Besides, she was only borrowing the money.

That evening during study period Miss Narayan called Nalina to her room.

"Nalina," she said kindly, "did you see anyone in my room this afternoon when you were cleaning?"

"Why, no Miss Narayan, I didn't." Nalina's voice was unsteady.

"Well, Nalina, I'm sorry to bother you. I just thought that since you were here most of the afternoon you might have seen someone."

"Well, of course," Nalina was politely concerned, "someone could have come in when I was in the kitchen. Seems I would have heard them though, doesn't it?"

"You know, Nalina, Devi has a reputation for taking things. She was in here just before supper. I wonder—"

"Oh, I don't think so." Nalina was



For a moment the skeleton flashed across her mind's eye. Bosh! thought Nalina. What a silly thing to think about! Besides, she was only borrowing the money.

quick to express her opinion. Devi really doesn't need money. She takes pictures and cute things, but I've never heard of her taking money."

The dean looked at her for a moment. "You know, Nalina, you are the most trusted girl in the dorm. That's why I called you in. If you have any ideas about who could have been in my apartment, I'd be glad to hear them."

Nalina left quickly. She thought she saw a disappointed expression on the dean's face. The most trusted girl, eh? Good thing she did not know about the skeleton, thought Nalina. And yet, I wonder. Maybe she does—

The dean's last words, "If you have any ideas about who—"

Usually the dean didn't ask the girls to tattle on one another. Oh no, she couldn't have known. And yet—

That night Nalina couldn't sleep. The five-rupee note burned in her purse. Her dreams were full of skeletons, rattling paise, sweets, and gum in their long, bony fingers. The five-rupee note seemed to float weirdly around them.

At assembly the next morning Nalina scanned the dean's face. It was calm and composed as usual. No one had heard of the theft. No mention was made of it. Still, Nalina was guilty. The dean had chosen a reading with "Be sure your sin will find you out" as one of the lines. Of course, the dean hadn't meant it for her. She had simply read it, hoping someone would confess. Confess? Not she. But she would get it off her conscience.

Nalina decided upon a plan. She would put the money back when she cleaned today, and Miss Narayan would find it and think she had made a mistake. No one ever need know about the skeleton.

But as Nalina worked that afternoon, it seemed Miss Narayan never left the room. Several times Nalina was in the act of plac-

ing the money back when Miss Narayan would suddenly appear.

Five o'clock: She must get it back so she could leave and get ready for supper. Then Miss Narayan was called out. Nalina hastily took the note from her pocket and frantically slid it under the book. I must get it just right, she thought, so Miss Narayan will think she overlooked it.

"Don't you think you ought to confess, Nalina?"

Nalina turned.

Miss Narayan was standing in the door.

"Confess what?" Nalina tried to look unconcerned. "I was just rearranging the desk a bit," she faltered, "and I found your money. Look, here it is under this book."

Miss Narayan looked stern and sad at the same time. "Nalina, you'll never be happy until you confess."

"But wh-, how- what makes you think I took it?"

"You told me yourself, Nalina, yesterday when I called you in. If you will remember, I did not tell you that anyone took anything. I simply asked if you had seen anyone in my room. You volunteered the information that it was money that was missing."

Nalina stood dumbfounded. Had she really given herself away like that? She burst into tears.

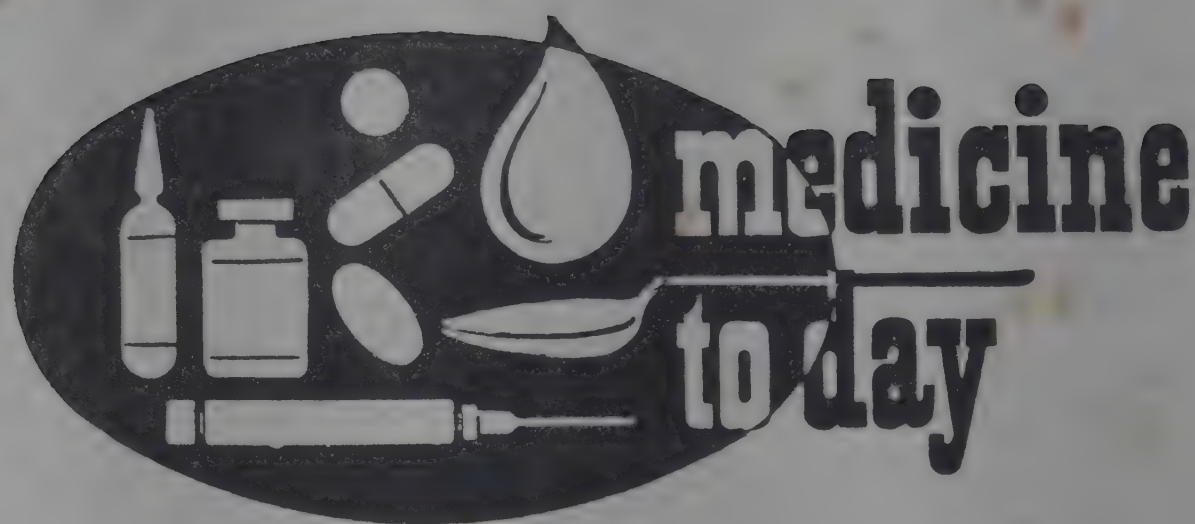
"Oh, Miss Narayan, now I really do have a skeleton in my closet! How can I ever get rid of it?"

Slowly, tearfully, Nalina told Miss Narayan about her skeleton.

"Nalina, there's only one way to rid yourself of those dry bones. We must confess and forsake our mistakes. Then you'll be rid of that skeleton once and for all."

"Only those to whom you owe confessions need it, Nalina. And if you determine never to take anything that doesn't belong to you, your skeleton will dry up and go away."

And it did.



Hormones and IQ

A research study has come up with preliminary data suggesting a relationship between an excess of androgen, a male hormone, before birth and unusually high IQ's in later life. Dr. John Money, an associate professor of medical psychology and paediatrics at John Hopkins University (U.S.A.), found that in a group of fifty-three females and seventeen males who had experienced abnormally high levels of the hormone in their bodies before birth, IQ's over 110 were measured in sixty per cent of them, compared with the national average of twenty-five per cent; and nearly thirteen per cent of them scored over 130, compared to the 2.2 per cent normally expected. The higher IQ's were found even though all subjects had their hormonal balance restored with cortisone therapy.

More extensive studies should be carried out, Dr. Money says, adding that "the possibility for future research looks particularly exciting." For example, if it is shown that androgen in some way directly influences intelligence, the hormone might be used to prevent suspected mental deficiencies in the unborn.

—*Today's Health*

Exercise—How Much?

The question as to how much an individual should exercise, although studied extensively, has not been answered. Four important factors must be considered in any intelligent answer, namely, (1) type of activity: jogging, swimming, bicycling, walking, et cetera; (2) how frequently engaged in: the number of times per day and per week; (3) the duration of the activity each day; and (4) how intensely the activity is engaged in.

It is obvious that there is no simple rule for prescribing the ideal combination of these four variables in

order for the individual to get maximum benefit from his particular exercise programme.

Doctors J. H. Wilmore and W. L. Haskell, who have studied this question, do not recommend exercising to the point of maximum ability. Exercise of any kind, done consistently will gradually permit one to do more and more. It would seem wise, therefore, for each to work within his or her tolerance limits. Simply stated—exercise regularly but don't rush it.

—*American Journal of Clinical Nutrition*

Meal Habits Affect Behaviour

Eat-and-run meal habits can create behaviour problems as well as nutritional deficiencies, says Dr. Nathan J. Smith, a professor of paediatrics at the University of Washington.

He says the decline of traditional family meals shared by parents and children may well be responsible for currently disturbing behaviour patterns when it deprives family members a platform for airing problems and talking about their day's activities.

Dietary and weight problems often begin in infancy, he says. Mothers trying to meet their babies' increasing nutritional needs introduce adult-type, high-calorie foods at too early an age. Ironically, the problem arises at a time when babies grow faster and are freer from disease than their counterparts were a generation or more ago.

Dr. Smith also says that "automated automobilized living" has led to nutritional deficiencies of suburban housewives and to undernutrition of lonely, isolated senior citizens.

He says devastating health problems associated with obesity have led many persons to adopt low-calorie diets. But in lowering their food and calorie intake, many per-

sons substitute nutrition-free alcoholic beverages or soft drinks for the high-nutrition foods and beverages they need on a low-calorie diet.

—*Health and Home*



GOSSIP

If you are tempted to reveal
What someone to you had told
About another; let it pass
Before you speak, three gates of gold.

Three narrow gates: First, is it true?
Then, is it needful? In your mind
Give truthful answer! And the next
Is last and narrowest: Is it kind?

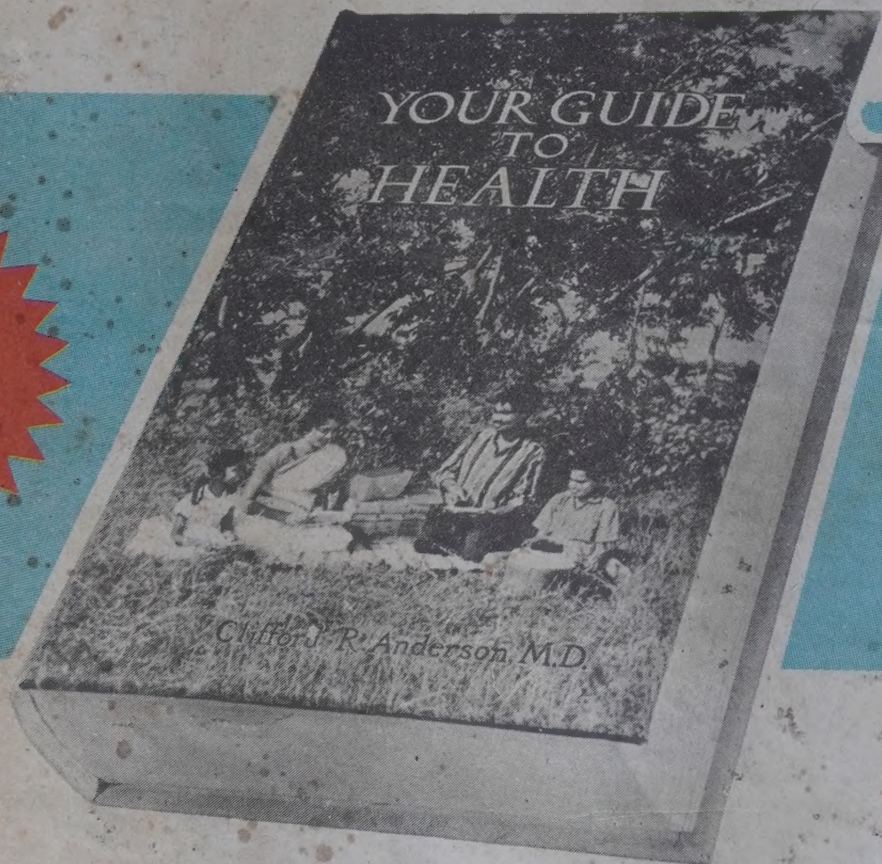
And if to reach your lips at last
It passes through these gateways three,
Then you may tell the tale, nor fear
What the result of speech may be.

—Author Unknown

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